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**SURGICAL AFFECTION OF THE
HEAD REGION IN EQUINE**



THESIS

PRESENTED BY

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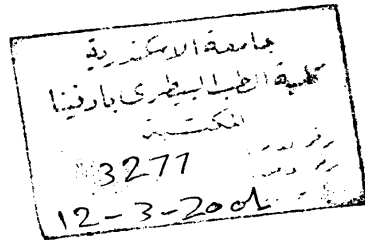
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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ
وَالْخَيْلِ وَالْبِغَالِ وَالْحَمِيرِ لَتُرَكَّبُوهَا وَزِينَةً وَيَخْلُقُ مَا لَا تَعْلَمُونَ
صَدَقَ اللَّهُ الْعَظِيمُ

(سورة النحل الآية رقم ٨)

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CONTENTS

	Page
Introduction-----	1
Review of Literature-----	2
Materials and methods -----	24
Result-----	31
Discussion -----	75
Summary -----	82
References -----	85
Arabic summary-----	

INTRODUCTION

Introduction

Horses have a long evolutionary history, stretching over many millions of years. This progression began with Eohippus, the 'dawn horse', and culminated with Equus, the species we know today.

The story of the horse as the servant of man started about 3,000 years ago, when the wild horses of the Asiatic plains were first domesticated. As this knowledge spread, so the first horse peoples gradually emerged.

From very early times, horses played a vital role on the battlefield. First charioteers and then, in later times, knights and cavalry were instrumental in winning many celebrated victories until the onset of modern wars.

Until relatively recently, man's social and economic life was dominated by the horse. For many, horses were the prime means of transport, while horsepower kept the wheels of both agriculture and industry turning.

Throughout history, horses have fascinated man. In various ways, they have played a part in his religion, art, literature, myths and legends from cave paintings of prehistoric times up to the present day. [*The Complete Book of The Horse (1980)*]

Nowadays, equine surgery plays an important role in the field of veterinary surgery. In this study, special attention was done for head affections.

Millichamp (1992) mentioned that in many cases of ocular surgery was unlike general surgery and required microsurgical instrumentation and technique. Eyelids serve many functions, Not only the least of which was to protect the eye from bright light but also in maintaining the corneal integrity by prevent corneal drying

Rebhun (1991) recommended that if the eye was edematous or infected it could be managed medically with topical and systemic antibiotic and local application of warm water for 1-4 days

Stashak (1991) reported that eyelid laceration less than 4 hours old can be prepared for surgery immediately and laceration between 4-12 hrs may be treated surgically unless excessive oedema and severe contamination were recorded. Basic principles for surgery of the eye-lid include removed little tissue as possible and accurately align the tissue and carefully oppose them. If the conjunctiva was lacerated suture, it with 4/0 to 6/0 absorbable suture material then applies the first skin suture along the sharp edge of lid through the meibomian gland. It was better to apply as 8-figure suture, after that place the next suture deeply 2mm from the eyelid edge. After suturing avoid manipulation of the eyelid and don't treat the eye with ophthalmic medications.

Rebhun (1991) recommended the used of topical broad spectrum antibacterial after suture of eyelid laceration.

Parker and Habin (1994) observed that laceration involving the eyelid might give rise to cicatricial extortion and/or on irregular eyelid margin.

Depending on the severity, both may cause out right corneal and/or conjunctival disease or predispose the horse to such ocular conditions.

Millichamp (1992) stated that conjunctiva provided a boundary that prevents the infectious microorganisms or foreign bodies from gaining access to the retro bulbar space. Goblet cells in fornix and superficial conjunctival epithelial cells were involved in the secretion of deep mucous layer of the tear film. The dense vascular arcades and lymphatic in the conjunctiva predispose it to become inflamed in response to many irritants and infectious organisms. In acute conjunctivitis, the conjunctiva was injected or hyperemic and edematous but in chronic conjunctivitis, it became hypertrophy and the lymphoid follicles became enlarged and prominent, hyperemia of the conjunctiva caused by deep ciliary vessels or from superficial vessel. Topical application of 2.5% phenylephrine was effective in the hyperemia that will be from superficial vessel

Parker and Habin (1994) concluded that acute conjunctivitis was common in the horse especially in summer when flies and dust probably played a part in its pathogenesis. Such cases were generally presumed to be bacterial responding to topical antibiotics. He also added other cause of conjunctivitis such as conjunctival squamous cell carcinoma; dacryocystitis, keratoconjunctivitis sicca, conjunctival foreign body and various systemic disorders were recorded.

Rebhun (1991) mentioned that laceration of the conjunctiva, unless extensive, seldom require surgical repair. The conjunctiva healed rapidly and only developed adhesions when both bulbar and palpebral conjunctival surfaces are affected.

Knottenbelt and Pascoe (1994) recommend that odema of the bulbar conjunctiva (chemosis) was often severe in the horse and may arise from local trauma, irritant chemical or dust, number of virus infections such as equine herpes virus¹ and⁴, failure of normal conjunctival lubrication and protection. In severe cases, it resulted due to marked desiccation of protruding and inflammation of conjunctiva. Subconjunctival haemorrhage was often observed in new born foal was of no significance in most cases. It was probably the result of trauma during parturition.

Rebhun (1996) mentioned the Habronemiasis lesions of the conjunctiva were particularly dangerous to the cornea. The lesions appeared as white gritty plaques in bulbar conjunctiva or nictitan membrane that became calcified. The symptom beside the histopathology was used to confirm the diagnosis. Ivermectin, surgical debridement of obvious calcareous nodules, wound dressing and bandaging was performed for treatment. Combinations of dimethyl sulphoxid and dexamethasone suspended in nitrofuracin ointment had been helpful for treatment of open wound with using a bandage to reduce granulation lesions.

Knottenbelt and Pascoe (1994) reported the housefly (*Musca domestica* or stable fly *Stomoxys calcitrans*), despite the larvae of *Habronema Muscae*, *Habronema Microstoma* and *Draschia megastoma* in the conjunctival sac or on the skin of the medial canthus. This disorder resolved over the winter months, leaving varying degree of facial scarring. Habronemiasis of naso-lacrimal sac must differentiated from squamous cell carcinoma, ocular histoplasmosis, sarcoid and fly damage.

(Slatter 1990) mentioned that the cornea was the most powerful optical refracting and transparent surface in the eye

Detergescence was a complex phenomenon that allows the cornea to be normally transparent (Gelatt, 1981)

Nasise and Jamieson (1992) attributed the corneal transparency was due to lack of keratinization and pigmentation of the epithelium, avascularity, non myelinated nerve fibers, dehydration and parallel arrangement of its collagen lamellae. Dehydration of the stroma was maintained by the hydrophobic properties of epithelium and endothelium.

Parker and Habin (1994) mentioned that corneal odema gave rise a characteristically blue mottled opacification of the cornea, it can resulted from keratitis (ulcerative and non ulcerative) or corneal endothelial disease. There were more diffuse corneal odema without corneal endothelial diseases.

Ismail (1987) stated that the corneal lesions occupied the first place among different ocular diseases in domestic animals. They represented about 47.5% of all ocular affection in domestic animals.

Samuelson, Andersen and Gwinn (1984) reported that horse might be more susceptible to fungal corneal invasion and infection due to large surface area and prominence of the equine eye

Fungi were a normal component of the equine conjunctival microflora but can become pathogenic following corneal injury (Whitley, Burgess

and Moore 1983; Samuelson et.al 1984, Moore, Heller, Major, Whitley, Burgess and Weber 1988)

Gelatt (1975) stated that injuries of the cornea were divided into partial and full thickness lacerations, and those associated with foreign bodies. The author added that full thickness lacerations of the cornea were the most cause of visual impairment and in extensive cases led to blindness.

Lavach, Severin and Roberts (1984) reported that sharp laceration involving the cornea alone had a better prognosis than those affecting both cornea and sclera.

Rebhun (1991) divided the disease with physical causes that which affect the cornea into: A-exposure keratitis; occurs due to trauma and facial nerve paralysis. Its signs were lacrimation, photophobia, and central opacities

B- corneal abrasions caused by foreign bodies and injuries of corneal epithelium
C- corneal epithelial erosion that may include acute large abrasions and chronic in older horses due to long treatment with antibiotics
D- stromal ulcers that invade the corneal stroma and required more extensive treatment to heal.
E- corneal laceration: the severe cases may result due to iris prolapsed.
F- corneal foreign bodies, these came from feed material, awns, burns thorns stones they may be attached to conjunctiva or third eye lid.

Smyth (1958) classified keratitis into three groups. In the 1st group: there was no loss of substance, in the 2nd group there was a loss in the substance of the cornea ranged from denudation of the epithelium to destruction of a part or the whole thickness of the stroma. In the 3rd group the

Descemet's membrane was ruptured. The same author classified keratitis clinically into superficial, interstitial suppurative and non-suppurative.

Gelatt (1981) differentiated keratitis into superficial, interstitial (deep) and ulcerative.

Magrane (1974) classified keratitis into, superficial, pigmentary, deep (interstitial) and ulcerative. He summarized the objective signs of keratitis in: loss of transparency, ciliary injection, vascularization of the cornea, cellular deposits in the anterior chamber of the eyeball and ulceration of the cornea.

Gertsen, Wales and Dowson (1973) mentioned that the subjective symptoms of keratitis were: pain, photophobia, lacrimation and blepharospasm.

Magrane (1974) classified keratitis into, superficial punctate keratitis, superficial dystrophies, superficial vascularization, pannus, exuberant granulation tissue, Bullous keratitis and keratitis sicca.

Gelatt (1981) classified the superficial form of keratitis into superficial punctate and superficial diffuse keratitis.

Ismail (1984) recorded five forms to the superficial keratitis respectively, superficial punctate keratitis, superficial diffuse keratitis, superficial vascularization, exuberant granulation tissue and keratitis sicca.

Knottenbelt and Pascoe (1994) recorded that traumatic injury of the cornea might be superficial or deep to cause laceration of epithelium or stroma or deep structure. If it not involved the full thickness of the cornea, there was a

strong blepharospasm and lacrimation. It healed rapidly if there was no complication. However, if it involved the full thickness of cornea it will heal with collapse of anterior chamber. The damaged of the cornea not accompanied by bleeding but it caused deeper damage involving the iris.

Rebhun (1992) mentioned that symptomatic treatment of corneal inflammation frequently was indicated to preserve vision in such disease as equine recurrent anterior uveitis, resolving stromal abscess. Bullous keratopathy (endothelitis), multifocal punctate keratopathy (endothelitis), multifocal and keratopathy and nonulcerative keratouveitis (*Brooks, Millichamp, Peterson, Laratta, Morgan and Dziez 1990*).

Donzis and Mandino (1987) added that immune-mediated melting corneal ulcers necessitate ocular immunosuppression

Gratzek, Kaswan, Martin Champagne and White (1995) reported topical cyclosporine A was safely used in a series of eleven cases of equine keratitis and keratouveitis and appeared to be an effective as anti-inflammatory agent in nine cases. The clinical symptom included interstitial keratouveitis, endothelitis, multifocal punctate keratopathy and a melting stromal ulcer. In most cases, the presence or absence of insidious bacterial infection was not conclusively determined. Topical cyclosporines had no deleterious effects in this series of cases. The authors suggest the use of cyclosporines in aqueous and lipid vehicles for ocular immunosuppression.

Osato, Roussel, Wilhelmus and Jones (1983) reported that cyclosporines did not interfere with neutrophil activity and also had inherent antimicrobial activity.

Rebhun (1991) used atropine and antibacterial ointment in case of keratitis without ulceration and used two percent tincture iodine in case of chronic erosions with antibacterial solution. The author also used sodium chloride five percent ointment to discourage stromal edema and decided that corticosteroid was contraindicated in case of the corneal ulceration.

Smyth (1958) stated that the treatment of keratitis in the absence of corneal ulceration and glaucoma consists of corticosteroid, mydriatics and antibiotics.

Magrane (1953) mentioned that chloramphenicol was absorbed rapidly, secreted slowly and penetrated the blood aqueous barrier rapidly when given orally. It also penetrates an intact corneal epithelium when applied locally.

Mathews and Handscombe (1983) stated that superficial keratitis in horses responded within four to seven days to application of eye ointment containing 0.5% idoxuridine.

Rebhun (1991) suggested the use of chloramphenicol and cefamandole in cases of eye infection with gram-positive microorganisms but in cases of the negative ones gentamycine, tobramycine or neomycine-polymyxin-bacitracine preparations were indicated. Bulbar Subconjunctival injection of antibacterial and use of collagenase inhibitors as 10 % acetylcysteine was used in cases of pseudomonas, which cause melting corneal ulcers.

Millichamp (1992) recommended the use of conjunctival flap for treatment of deep corneal ulcer that could not be intensively medicated.

Rebhun (1991) reported that the conjunctival flap was seldom used in the infectious corneal ulcerations unless corneal ulceration was imminent.

Read, King and DuPreez (1996) reported a case of 3-year-old horse suffering from blepharospasm, globe retraction and lacrimation of the right eye. The clinical finding was a small shallow corneal ulcer and using chloramphenicol ointment plus gentamycin for treatment and tobramycin drops. The ulcer became large by aversions of nictating membrane found small 3 mm pale hard-elevated lesions in the bulbar conjunctiva; it was attributed to infection of habronemiasis by histopathology. After removal of the lesions and use of chloramphenicol the animal become recovered.

Hendrix, Brooks, Smith, Gelatt, Miller, Whittaker and Chmielewski (1995) reported 24 cases of the corneal stromal abscesses in the horse. 20 of them suffering from corneal ulcer, corneal opacity or evidence of ocular pain. All horses were treated with antibiotic, topical atropine and systemic flunixin meglumine. Ophthalmic examination revealed focal yellow, white corneal opacities and corneal vascularization. Nine of them responded to topical and systemic medication. Fifteen were treated both surgically and medically. The surgical procedures include deep keratotomy with conjunctival flap.

Brooks (1992) reported three methods for surgical removal the eye. The first method for enucleation in which the globe and nictitating membrane were removed this could be done in subconjunctival or transpalpebral technique. The second method was exenteration of the eye that used in case of malignant tumors, in which the entire orbital contents will be removed. The

third method was evisceration method to remove intraocular contents to leave only the sclera, cornea and their extra ocular attachments.

Nasisse and Jamieson (1992) stated that healing of the corneal wound depends on the size, location and depth of the wound. Healing of 1 cm of epithelium needed 3 to 4 days if there were no complications, while epithelial basement membrane required long time to heal. Because of perfect lamellar arrangement of collagen fibrils, the stromal wound leaved a scar formation after healing during weeks to months.

Rebhun (1991) reported that acquired cataracts occur in horses of all breeds. Their pathogenesis was unknown. If prior uveitis, trauma and congenital lesions were ruled out, cataract formation was considered idiopathic. Some of these cataracts might represent genetic conditions, but this has never been confirmed. Cataract extraction in adult horses was extremely difficult and fraught with many potential complications; only an experienced surgeon with proper instrumentation should perform it. Many horses with acquired focal cataracts continue to perform well and require no treatment.

Parker and Habin (1995) stated that causes of cataract formation were congenital, developmental or senile. Then also mentioned that the location of opacity presented within the lens, with incipient or immature cataracts. It was possible to classify the opacity according to where it was located within the lens, cataracts can be located within the nucleus, cortex and or on (or within) the lens capsule. Location of the opacity can be further defined as being equatorial, polar (anterior and/or posterior) Subcapsular and perinuclear.

Saleh (1989) stated that the histoplasmosis in donkey was restricted to lacrimal drainage system. The donkey took the infection from dust it began by slight conjunctivitis, blepharospasm and overflow of tears over the skin causing (tear eczema), dacrocystitis and granulomatous lesions in the puncta lacrimalis. By using of contrast media, stenosis of lacrimal canal was observed and by microscopic examination we found double countered ovoid yeast. The author recommended manual squeezing of necrotic tissue and lacrimal sac. Extirpation of the third eyelid, medial canthotomy and removal of the granulomatous tissue with using of zinc oxide in skin eczema, were performed.

Weekes (1994) recorded two methods for ophthalmic lavage systems; first, one was subpalpebral system and second one was nasolacrimal system. The complications of the nasolacrimal system lavage were less serious than those using the subpalpebral route.

Stashak (1991) described a case of lip laceration caused by sharp protruding objects. He used number 10-bard barker scalpel blade to separate the muscle from the edge of the wound. Then applied complete ventral mattress quill sutures that penetrate the dissected muscle centrally and the knots located on the outer surface of the lip. The mucous membrane was sutured with 2/0 absorbable suture then the skin was closed with interrupted vertical mattress using 2/0 monofilament nylon or prolene. Then antibiotic course and anti-inflammatory drugs were given. In case of chronic laceration of the lip commissure, it treated cosmetically to prevent saliva, water and feed drooled through cheek. He added that sagging lower lip, wry nostril and wry upper lip resulting from a traumatic transection of the right facial nerve was

treated by resection a full-thickness of triangular shape of the paralysis lip and suture the lip as previously described.

Colahan (1991) mentioned that surgical treatment of the lips was typically limited for suturing the wound or removing the tumors. The principles of good surgical technique applied, reduced contamination by debridement and lavage, apposed the deep tissues to reduce dead space, provide continuity of the muscular layers, and closed the skin carefully using tension sutures on the external surface only.

Saperstein (1983) recorded that the only congenital condition of the lip was hypoplasia of the upper lip. It was noted in association with other congenital abnormalities of the eye, there was no effective treatment.

Knottenbelt and Pascoe (1994) stated that virus warts (papillomata) were one of the most common skin diseases of grazing and yearling horses and that due to papovavirus infection. The lesions were single or multiple small verrucose tumors. Principally presented around nose, lips and eyes.

Miles (1890) noted that warts were common finding in horses and could be easily removed by tying a ligature around them or with scarcely any pain, by applying camel hair pencil, with small portion of strong acetic acid: Warts were also removed with a knife or scissors and the root touched with any caustic body. He added that a paste made from sulphuric acid and powdered sulphur ("a sufficiency of each" making up the mixture) was likely to resolve all those warts.

Knottenbelt and Walker (1994) mentioned that the most consistent effective treatment of equine sarcoid (radiation brachytherapy) was also the most limited in its application and the easiest (surgery) was probably the most ineffective overall. The development of AW-3LUDES two antimitotic compounds (5-flourouracil and thiouracil) as topical treatment was a step forward in respect of results, cost and convenience but it was not yet the definitive answer to the therapeutic prayer!

Pascoe (1991) stated that sarcoid, squamous cell carcinoma and pythiosis occur in mouth and nose region in equine. Sarcoid may had either verrucose (warty) or granulomatous elements or a mixture of both: when the lesions were presented around the mouth an area of alopecia around the tumor was observed. Around the lips, sarcoid also occasionally invade the subcutaneous tissue with the lesion being visible within the inside of the lips. Papillomata of young horses were observed rarely and were displayed as granulomata.

Equine papillomatosis (grass warts) were self-limiting over two to three months, and were common in young horses at grass. But the course of verrucose sarcoid persists and continues to expand over a variable period of time (*Knottenbelt, Edwards And Danial 1995*).

Barbet (1991) said that the causes of warts (verruucose) were the equine papilloma virus, a species-specific papovavirus in the DNA virus group. The disease was spread by contact with other horses; its incubation period was about 60 days. In the horses fewer than three years warts appeared on the muzzles and lips. The warts disappeared spontaneously after 60 to 100 days from development. Severe cases may require treatment if it interfere with

eating or other function by cryosurgery, chemical cautery like podophyllin with salicylic acid and trichloroacetic acid.

Shappell and Little (1992) mentioned that two forms of equine papillomatosis were recognized. The most common form was the typical warty lesion. Warts were frequently multiple and might occur in several locations. The muzzle was the most commonly affected area; also, the distal limbs, genitalia, eyelids and neck might be involved. Spontaneous regression of lesions usually occurs without therapy in 1 to 6 months. Affected horse developed complete (permanent) immunity.

Knottenbelt and Pascoe (1994) stated that traumatic lesion involving the tongue occurs relatively and commonly in the horse. The blood supply to the tongue and buccal mucosa was good, and healing occurred rapidly. Glossal weakness in neonatal foal was characterized by a protruding of tongue that could not withdrawal into the mouth. This condition was temporary mild.

Stashak (1991) and Colahan (1991) mentioned that laceration of tongue was occurring due to accident or during recovery from general anesthesia. Superficial laceration was sutured by tension sutures that placed on the dorsum of the tongue and closure of the dead space carefully to prevent formation of hematoma

Stashak (1991) used sodium fluorescein per 1000/b intravenously and wait 5 minute by using wood's lamp. He observed the affected portion of tongue as a diffuse or splotchy fluorescent pattern indicated a good blood supply. No florescence of the affected portion of the tongue must do amputation to this part. He added that congenital deviations of the maxilla,

incisive bones and nasal septum [wry nose] were noticed in foal and it was about 80 to 90 degrees. The first operation corrected the deviation in the maxilla and incisive bones by the help of Steinmann pins and a second operation was performed to remove the Steinmann pins and resected the portion of the nasal septum that was deviated.

Blackford James and Blackford lee (1992) mentioned that overbite and under bite was a congenital abnormality. Parrot mouth was more common than sow mouth. It was easy diagnosed from the visual examination and treated by regular dental care or by surgical method in which the cerclage wire contact between the premolars and incisor tooth and remove the incisors when were aligned.

Baker (1991) reported that shear mouth arises from an excessive difference in width between the maxilla and mandible. It may be unilateral or bilateral, the signs of the lesions were similar to those associated with sharp enamel points but it more sever. The treatment involving cutting and rasping of the teeth to improve alignment and hard feed may postpone reoccurrence.

(Moller and Doller 1960; Schnider 1981, Little, Hilbert and McGill1985) reported that the mandibular fractures were apparently the most common fracture involved in equine head and mostly occurred in young animals.

Tremaine (1998) Asquith (1979) stated that mandibular injuries in equine resulted from blunt trauma and kicking, in which the horse become inappetance, quidding, slow eating, halitosis, salivation, oral haemorrhage, mandibular swelling and pain. Diagnosis was confirmed by visual and digital

palpation and different radiographic views. The treatment included the used of: Cerclage wires.

Cross pinning when cerclage wire fixation was inadequate used in cases of bilateral fractures of the interdental space, symphyseal fractures and some fractures of the rostral incisive body (*Blackford James et.al 1992*)

Intramedullary pinning and nailing techniques had limited applications in the repair of premaxillary and mandibular fractures in the horse. This technique was suitable only for use in elderly horses because of the presence of tooth root occupying the potential space in younger horses. (*Blackford et.al 1992 Turner 1984, Sullins and Turner 1982 and Meagher and Trout 1980*)

Fixation with all-bar made from an aluminum or brass rod used in case of the fracture of the mandible or premaxilla. The bar connected to incisors and second or third premolar by wire (*Krahwinkel, Hefferman and Ewbank 1969, Gabel 1969, Kersjes, Nemeth and Rutgers 1985*).

Crabill, Honnas and Colonas (1999) mentioned that due to lack of visualization and limited working space in the mouth to fix the bar with cheek teeth by wire. The author used the cortical bone screw to fix the bar with premolar teeth instead of wire.

De Bowes (1981) stated that the lag screw fixation: cortical bone screws were placed in lag screw fashion. It was used in repairing separation of the mandible symphysis.

External fixation with Krishnaer apparatus: was applied using two pins placed rostral and caudal to the fracture and in parallel lines and connecting the pins with bar by clamps or used acrylic cement to connect the pins. Following surgery the sidebars should be bandaged to prevent the horse from catching the apparatus on objects in the environment (*Garner and Thurman 1968, Meagher et.al 1980*)

Monin (1977) recommended the use of an external thermoplastic brace fixed to the labial surface of the mandible incisors to repair the incisive body fracture. The brace was fixed by orthopedic wire, and it was combined with a tension band wire anchored to the mandible.

Colahan and Pascoe (1983) recorded that the fracture of the interdental spaces of the premaxilla or the mandible stabilized by using of the intraoral acrylic splints.

Dynamic compression plates were useful in decreasing the fracture gap while providing stability across the fracture lines (*Meagher et.al 1980, Sullins et.al 1982*).

Stashak (1991) mentioned that depression fracture of facial bone could be diagnosed by physical and radiographic examination. After opening of the skin above the fracture as (Y incision, large S-shape incision), The fractured bone stabilized to healthy one by stainless steel wires and applying drainage and close the subcutaneous tissue and skin by suture material. The fistula of the fracture bone may result after opening of the fracture.

Watkins (1991) and Stashak (1991) Stated that transposition of the skin flap, muscle transposition; periosteal flaps were used to correct the facial fistula. Also debridement and pressure lavage, with removal of small fragment devoid of soft tissue attachment, minimize sequestrum formation.

Knottenbelt and Pascoe (1994) mentioned that congenital or hereditary conditions of the soft tissue of the mouth were rarely encountered in the horse and were apparent in early stage of life like hard palate clefts. The foal show dramatic nasal regurgitation of milk during nursing or after feeding with milk this led to inhalation pneumonia

Howarth (1995) stated that causes of tooth extraction were periapical abscessation secondary to periodontal disease, tooth fracture, infundibular necrosis, maleruption/impaction, trauma, haematogenous spread and removal of supernumerary teeth. The presenting signs of equine dental disease were oral discomfort, halitosis, facial /mandibular swelling and fistulae. Surgical operations for removal of cheek teeth include repulsion via oral cavity, via a trephine hole or via an osteoblastic flap; or via oral extraction or using a lateral buccotomy approach.

Edwards (1993) stated that retention of the cheek teeth would discharge purulent material. The x-ray will confirm the diagnosis of the affection in case 1 swelling of the right horizontal ramus of mandible and in case 2 in left mandible and in case 3 at the rostral end in the right side of the facial crest and in last two cases discharging purulent material. The first two cases had a good prognosis after removal of the retained teeth but in the last case the teeth remove via the sinus and the discharge recurred after 18 month of surgery.

Lane (1994) discussed the complications which could arise from traditional dental repulsion were traumatic fracture of the mandible, inadvertent disruption of adjacent structures; {Naso-lachrymal duct, Parotid salivary duct, Branches of linguofacial artery and vein, Palatine artery, Facial nerve and Infra-orbital nerve} Failure to remove the entire tooth-dental sequestration, sequestration of alveolar bone fragments and oral-antral fistula formation.

Easley (1999) concluded that radiographic evaluation of the tooth was only the way to visualize the reserve crowns; root and support structures of involved tooth and reduce the risk of complications. The deciduous incisors of the horse were often injured or avulsed in conjunction with fracture of the mandible or premaxilla. The fracture tooth should be removed to allow permanent teeth room for normal eruption.

Tremaine (1997) and Orsini (1992) recommended that radiography was a key for diagnostic aid in the investigation of the dental disorders involving the reserve crown or teeth apices.

Orsini (1992) stated that endodontic [root canal] therapy could prevent tooth loss by removing the infected soft tissue from the pulp cavity of a diseased tooth. With a high-speed dental air drill removed the apices [apicoectomy] to approach the root. The cavity was sterilized with H₂O₂ and dried and filled with calcium hydroxide and sealed with amalgam or a glass ionomer cement

Baker (1991) recorded that sharp enamel points resulted from normal grinding action of dental arcades led to formation of complex transverse ridges

across the occlusal surface of teeth. Full lateral movement of the mandible resulted in incomplete wear of buccal surface of the lower arcade and lingual surface of the lower arcade so that small, sharp enamel points form along the edges. Abnormal mastication resulted in change in the shape and position of the normal transverse ridges across the occlusal surfaces led to formation of wave mouth. The step mouth was characterized by marked variations in the height of individual premolars and molars. This may be due to unequal wearing of opposing teeth in the dental arcade or squeal to surgical removal of teeth.

Lane (1994) mentioned that firm swellings of the facial crest were almost always associated with periapical infections of the first 3 cheek teeth.

Bladon and Lane (1997) stated that the infundibulum was a potential site for food accumulation, which resulted in bacterial growth and dissolution of dental tissue by the acidic products of bacterial degradation of carbohydrate. This condition was frequently termed infundibular necrosis or caries, correctly known as cemental hypoplasia, present in all horses by age 9 years.

Jansson, Hesselhot and Falmer-Hansen (1998) observed 10 years old horse suffering from granulating wound with 4 fistulas coming from the right mandibular bar just caudal to canine tooth. The radiograph picture of this area showed evidence of osteomyelitis in the mandibular bare overling the root of canine tooth. Several bone sequestra were identified as well as alveolar periostitis of the same teeth. The main cause of this affection was a severe bit-induced trauma to the bar. Complete recovery was created by extirpation of the right mandibular canine tooth and the curettage of osteomyetitic and necrotic bone tissue.

Knottenbelt and Pascoe (1994) stated that the ethmoid haematoma was a progressive, locally invasive and destructive mass occurring in the nasal cavity and /or the paranasal sinuses of mature horses. It was a neoplastic like appearance. The earliest clinical indication of ethmoid haematoma was a mild, non-postural unilateral, intermittent, spontaneous odor-free, serosanguineous or mucoid nasal discharge.

Watkins (1991) mentioned that the osteomas were benign, slow growing neoplasm composed of trabecular bone. These tumors usually were well demarcated from the parent bone. Osteosarcomas were very rare but can occur in the head region of the horse. They were locally invasive, and have a low incidence of metastasis and long clinical course. Fibrosarcomas were highly malignant and have a higher incidence of metastasis than Osteosarcomas.

El-guindi and Kassem (1987) recorded a case of Osteodystrophia fibrosa in a foal suffering from a nearly symmetrical swelling of the maxillary region of sinus with marked dyspnea accompanied with a slightly sero-mucoid nasal discharge from both nostrils.

Caron (1992) stated that low-pressure lavage was effective in removing relatively large, unattached tissue fragments from the old wound. But has limited ability to remove small particles, including bacteria, and soil components, so low-pressure lavage was ineffective in reducing infection rates. High-pressure irrigation had several suspected side effects including tissue damage, peripheral dissemination of bacteria and potentiation of wound

infection. Thus, high-pressure lavage should be used in heavily contaminated wounds only.

Kaul and Jewett (1981) mentioned that povidone-iodine was widely used as a wound irrigation. Dilute solution yield more free iodine than concentrated ones and had less effect on host cells. One percentage of stock preparation was currently recommended for use in wound irrigation.

Cockbill and Turner (1995) recorded that wounds may be defined as closed (contusions, bruises, rupture and sprains) or open (abrasions, lacerations, avulsions, ballistic, penetrating, hernias and excised or surgical wounds). Open wounds were the most common on the domestic species.

Materials and Methods

In the present study, a total number of 12180 animals of equine species were examined (7186 horse; 4091 donkey; 903 mule).

Animals were collected from Brook Hospital for animal clinic in Alexandria, Cairo and Edfu.

Table (1): Showing the number of the cases of head affection in Equine Species.

<i>Animal species</i>	<i>Number of examined animals</i>	<i>Number of head affection</i>	<i>%</i>
Horse	7186	456	6.34
Donkey	4091	316	7.72
Mule	903	152	16.83
Total	12180	924	7.58

The entire animals were subjected for full physical examination including: history of the case, clinical examination (general and special for the head region). Diagnosis, differential diagnosis and treatment (medical and/ or surgical) were applied.

Sedation

Sedation used in this study was combination of 0.1ml domosedan /100 kg should be given intravenously followed within 5 minutes by a dose rate in the region of 0.25ml torbugesic injection/100 kg. Clinical experience has shown that a total dose of 0.5ml domosedan and 1.0ml torbugesic injection affords effective, safe sedation in horses above 200kg body weight

Anaesthesia

. In case of general anesthesia was used the previous combination of domosedan and torbugesic was given to animal and then wait until the drug

produce predictable sedation, muscle relaxation and analgesia resulting in a patient that was reluctant to move, coordinated, able to support its weight and totally uninterested in its surroundings, after that 3-5 mg thiopental sodium was given.

The local anesthesia *xylocaine 2%* was used in minor operation.

Different types of ocular therapeutics that was used for treatment of such ocular affection, it was include.

1- Cleansing solution: boric acid lotion 4% and 0.2% povidone-iodine salt solution. Used for flushing the conjunctival sac and removal of secretions and also as a hot fomentation in case of inflammation of the eyelid and conjunctiva.

2- Eye drops:

-Mydriatics: Isopto Atropine. It was indicated for mydriatics and cycloplgia in cases of acute inflammatory condition of the cornea, 1-3 drops every 3 or 4 hours until the eye became comfortable to close and open without pain.

- Antibiotics:

a) Isomiphenicol. It has a wide spectrum against many gram +ve and gram-ve bacteria. It was used for conjunctivitis, keratitis, and prophylaxis of eye infections before operations or following trauma. The dose is 2-3 drops 3-6 times daily.

b) Garamycin eye drop. Most likely to be effective against gram -ve infection, suspected pseudomonas, it was used for treating conjunctivitis, keratitis, blepharitis, ulcerative keratitis, kerato-conjunctivitis and laceration of the eyelid and conjunctiva. It was applied 3-4 times daily.

c) Polyspectran: It was indicated in keratitis with mixed bacterial infection, lacrimal apparatus infection and blepharitis. The dose was one drops 3-6 times daily.

d) Terra-cortil suspension: Used in case of conjunctivitis, the dose was 3 times daily until complete recovery.

e) Amikin (used as eye drop in case of histoplasmosis to treat secondary bacterial infection.

3-Eye ointments:

a) Antibiotics: -

-Garamycin ointment

-Terramycin eye ointment. It was used in case of conjunctivitis and inflammation of the cornea

b) Anti-inflammatory: -

-Dexamethasone eye ointment

The disinfectant solutions and drugs used for wound dressing

include:

-The disinfectant solution and wound dresser

1) Betadine antiseptic solution.

2) Dermisol solution. It encourages healing in the presence of necrotic tissue, coagulum or debris and inhibits infection.

3) Dermisol cream. Used after dermisol solution.

4) Dermobion (anti-inflammatory and antimicrobial) ointment

5) B-R antiseptic jelly.

6) Bivacyin spray: It was a local antibiotic.

7) Glycerin maniza 33.3% with acriflavin 0.1%: used for dressing of abscess, wounds, and burns and for large wound.

8) Animal Intex (Poultice dressing): it was used in infected, dirty wounds (like road traffic accidents), after cleansing the wound with boiled water and salt, apply the animal Intex not too hot and change it every eight hours, use 3 to 4 wet dressings, then dry ones. (It is produce by).

9) Cod Liver Oil.

10) Icthyol ointment 10% for ripping of abscess.

11) Gentian violet 1%

12) H₂O₂

13) Tincture iodine 2.5%

14) Alum solution

The parenteral drugs was used in this study include:

A-Antibiotics. It was used after surgical operation or in treating severe wound infection.

-Penicillin procaine

-Neobiotic

-Streptopencid 2 gm.

-Uvomycin.

-Gentamicin 5%.

B-Sulphonamide

-Uni-Sulfa

C-Anti-inflammatory

-Equipalazone

-Dexa-Tomanol

-Declophen.

-Arthridine.

D-Coagulant drug: it was used to treat the epistaxis

- Phytomenadione.

-Epinephrine

E-Tonic: it was as supportive in debility animal and after surgical operation.

-Tonophoshan

- Tri-B amp.

F-Anthelmintic drugs: Eqvalan past 200mg/kg body weight.

The suture materials that were used in this study include:

- *-Chromic catgut 2
- **Chromic catgut 2
- ***- 0 Monofilament (polydioxanone) violet, absorbable
- ****- 2/0 Monofilament (polydioxanone) violet, absorbable.
- *****- 3/0 Monofilament (polydioxanone) violet, absorbable.
- *****- Nylon (polyamide) blue monofilament non-absorbable
- #-Supramid white polyimide, Non absorbable suture material
- ##-Vetafil Bengen extra heavy 0.60mm synthetic suture
- &-Surgisilk 0
- &&-Mersilk 4/0
- &&&-Silk 2/0

Jaw fixation wire.

- @-Kirschner (Rollo hilo acero blando soft coiled wire/cerclage)

*(Chorda Resorbilis Aseptica Ph. Eu.)

&(Sutures L.T.D U.k)

** (Arnolds veterinary products)

&&(Ethicon LT.D U.K.)

*** Ethicon LT.D U.K

&&&(UNIK)

**** Ethicon LT.D U.K

***** Ethicon LT.D U.K.

***** (Assut sutures)

##(Wirtschaftgenossenschaft Deutscher Tierazte eG, Germany)

@ Manufactured by INDUSTRIAS QUIRURGICAS DE LEVANTE, S.A. SPAIN

Table (2) Showing the ingredient of each drug used and its company.

Drugs	Active ingredient	Company
Domosedan	Detomidine hydrochloride 10mg/ml	SmithKline beecham
Torbugesic	10mg butorphanol tartrate	Fort Dodge
Xylocaine 2%	Lidocaine hydrochloride	Astra comp.
Thiopental sodium	Thiopental sodium	Epico
Isopto Atropine 1%	1% atropine sulphate	Alcon
Isomphenicol eye drop	Chloramphenicol 0.5%	Misr Com
Garamycin eye drop	Gentamicin sulphate .3%	Merck sharp.
Polspectran eye drop	polymyxin b sulphate 7.500 I.U gramicidin 0.02 mg and neomycin sulphate 5 mg	Thilo com.
Terra-cortil suspension	5 mg oxytetracycline Hcl and 15 mg hydrocortisone	Pfizer
Amikin 100mg	Amikacin sulphate 100 mg	Pfizer
Tears Naturals	Artificial tear	Alcon
Garamycin ointment 0.3%	Gentamicin sulphate .3%	Merck sharp.
Terramycin eye ointment	5mg oxytetracycline Hcl	Pfizer
Dexamethasone eye oint.	Dexamethasone 0.5%	Cursi comp.
Betadine antiseptic sol.	Povidone-iodine 10%	Nile co.
Dermisol solution	Propylene glycol ph.Eur.40% v/v, malice acid 2.25%w/v, benzoic acid ph. Eur.0.15%, salicylic acid ph. Eur. 0.037%w/v	Beech animal health
Dermisol cream		Beech animal health
Dermobion ointment	Nitofurazone, prednisolone, neomycin sulphate in base containing chlorophyll and cod-liver oil.	Willows Francis Veterinary, England
B-R antiseptic jelly	proflavine Hemisulphate 0.1%	Radiol health care
Bivacyin spray	165.00 I.U of neomycin sulfate	Lek Company
Animal intex	and 12.500	Robinson animal

Penicillin procaine	Tragacanth 16%, Boric acid not more than 5%	health care
Neobiotic	procaine penicillin G 300.000 and penicillin G Sodium 100.000	Nile co.
Streptopencid 2 gm	procaine penicillin G 300.000 and penicillin G Sodium 100.000 and streptomycin 0.5gm	Nile co.
Uvomycin	Procaine penicillin G 300.000 and penicillin G Sodium 100.000 and streptomycin 2gm	Hoechst Orient
Gentamicin 5%	50 mg oxytetracycline dihydrate	Bremar
Uni-Sulfa	Gentamicin sulfate 85mg equal to gentamicin 50mg	Pharma GMBH
Equipalazone	Sulfadimidine sodium 33%	Amoun pharma
Dexa-Tomanol	Phenylbutazone 200mg/ml Isopyrin, phenylbutazone sodium, and dexamethasone and Cinchocaine hydrochloride	Arnold veterinary p. Schering-Plough
Declophen amp.	Diclofenac sodium 75 mg/ml	Pharco. Company
Arthridine	Phenylbutazone 20g, sodiumsalcylate 2g	Virbac laboratories
Phytomenadione	Phytomenadione 10mg/ml	Memphis Co
Epinephrine	Adrenaline	Misr Com
Tonophoshan	sodium 4-dimethylamino-2-methyl-phenyl-phosponate	Hoechst Orient
Tri-B amp	vitamin B1 (100mg), vitamin B6 (40mg) and vitamin B12 (100mcg)	Nile co.
Eqvalan paste	Ivermectin 200mg/ kg	Merck comp.
H ₂ O ₂		Luna comp.
Cod liver oil		El-Gomhoria comp.

Table (3) shows the different ocular affection in Equine

Affection	Horse		Donkey		Mule		Total	%
	R	L	R	L	R	L		
<u>Eye lid affection</u>								
Recent wounds	13	8	7	2	1	-	31	3.35
Old wounds	5	6	10	12	2	1	36	3.90
Tumors	-	-	1	1	-	-	2	0.21
Conjunctivitis	30	22	10	19	7	10	98	10.60
<u>Supraorbital process</u>								
Fracture	-	-	1	-	-	-	1	0.10
<u>Cornea</u>								
1. WOUNDS								
i) Superficial abrasions	20	15	8	3	-	-	46	5.00
ii) Deep lacerations	4	7	2	1	-	-	14	1.50
2. Keratitis								
<i>Superficial keratitis</i>								
i) S. Punctate keratitis	13	6	3	5	2	-	29	3.14
ii) S. Diffuse keratitis	5	2	6	1	2	1	17	1.84
<i>Deep keratitis</i>								
Ulcerative keratitis	8	9	3	5	2	2	29	3.14
<i>Keratitis sicca</i>								
Keratitis sicca	3	4	-	-	5	6	18	1.94
3. Corneal abscess								
Keratoconjunctivitis	12	13	2	3	7	8	45	4.87
4. Keratoconjunctivitis								
a) Non infection	9	10	7	12	5	7	50	5.41
b) Infectious	8	5	4	2	3	6	28	3.03
<u>Globe</u>								
Squamous cell carcinoma	1	-	-	-	-	-	1	0.10
<u>Lens</u>								
Cataract	5	3	-	-	4	6	18	1.94
<u>Lacrimal apparatus</u>								
Histoplasmosis	-	-	80		-	-	80	8.65
Dacrocystitis	-	1	-	-	-	-	1	0.10
Total	252		210		87		549	59.36

Result

Eyelids affections

Wounds

In the present study of 67 cases of the eyelid wounds were recorded (32 in horses, 31 in donkeys and 4 mules) represent 7.25%.

Recent wounds of eyelids recorded in 31 cases (21 horses, 9 donkeys, 1 mule) represent 3.35 % and old wound recorded in 36 cases (11 horse, 22 donkey, 3 mule) represent 3.90 %.

Acute oblique full-thickness laceration of the upper eyelid (Fig.1). A sharp protruding object in the trailer caused the injury, sustained during transport. Duration from injury to presentation was under 3 hours. The eye was normal and the patient appeared healthy. The skin and wound were prepared with 0.2% povidone-iodine salt solution. The wound was debrided minimally. The stay suture of 0 nylon was used to approximate the apex of the skin flap eyelid margin back into its normal anatomic position. The conjunctiva was sutured with 4-0 monofilament absorbable suture in a continuous pattern. The skin was apposed with simple interrupted suture of 0 nylon (Fig. 2). Healing of the wounds took a period of 7 to 10 days.

Other form of recent wounds was *vertical laceration wound* of the lower eyelid. This form of the wound laceration was more series than transverse, because there was deviation of the lacrimal ducts with severe epiphora and inflammation (Fig.3). Vertical wound of the eyelid took more effort for trimming and coaptation of the wound edge. Suturing conjunctiva with 3/0 absorbable suture and the skin with 2/0 silk and Care was taken to

avoid rubbing the cornea by suture material. Healing was obtained by first intention in a period of 8 to 10 days. After complete healing there was a small deformity of the ventral margin of the eyelid (Fig. 4).

A small defect of the ventral eyelid was recorded (Fig. 5). Surgical operation to suture the conjunctiva with the skin of the eyelid to prevent the dryness of the cornea (Fig. 6). Healing was occurred after 10 day.

Tumors

Tumor of the eyelid was recorded in two-donkey represent 0.21% Tumors of the skin over the supraorbital process was seen in a donkey, this tumor was in a nut size and diffused near to the medial commissure of the right eye (Fig.7). Surgical excision of the tumor proved to be the radical treatment of tumor. By making an elliptical incision over the tumor and a blunt dissection was made to separate the lesion from surrounding. The tumor was removed and the skin was closed with monofilament nylon. After 10 days the suture was removed. Healing was obtained 10 days post operation.

In the second case there was a tumor under the lower left eyelid (Fig. 8) surgical excision of the tumor and then using an electrocautery over the lesion. Because of the lesion was very closed to the eyelid and the skin wound was not enough to suture. The wound was left to heal by second intention.

Conjunctivitis

In this work 98 cases of conjunctivitis were recorded (52 horses, 29 donkeys and 17 mules) represent 10.60 %. The most common symptoms were swelling and redness of the conjunctiva (Fig. 9), predisposing factors to conjunctivitis including irritation by dust, wind and dirt. In some cases there

were a mucopurulent ocular discharge. All cases of conjunctivitis undergo medical treatment with ocular lavage with boric acid 4% lotion or saline and application of chloramphenicol and Terramycin eye ointment. The recoveries of the moderate cases were occurred within 2-3 day. Meanwhile severe cases needed 5-7days to become recovery. Different types of conjunctivitis were recorded as catarrhal, purulent and paranchymatous conjunctivitis.

Supraorbital process

Fractures

Fracture of the supraorbital process was recorded in one donkey represent 0.10 % with deep lacerated wound above the right side of the eye (Fig.10). Removing the dead tissue and fractured portion of bone was performed then suture the subcutaneous tissue with 0 absorable suture and the skin with No 0 silk (Fig.11). Complete recovery was obtained 20-day post operation.

Corneal affections:

Wounds

In this study traumatic injuries of the cornea were recorded in 60 cases (46 horse and 14 donkey) represent 6.5%. Superficial abrasions or laceration in such cases induced by sharp trauma or by using a whip. The laceration was usually linear or triangular in shape (Fig.12). Treatment of corneal abrasion was performed by topical antibacterial (chloramphenicol + Terramycin eye ointment) and atropine drop were applied to the cornea. The wound healed within 4-8weeks.

Laceration of the cornea in such cases involved more than half of the corneal thickness (deep laceration) (Fig.13). There was a more belepharospasm

and epiphora. Atropine instillation every 2 hour to relief the pain until complete cycloplegia was obtained and a combination of antibiotic drops gave frequently like (chloramphenicol1% + gentamicin sulphate). The animal got recovery after 8-12 weeks.

Keratitis

Concerning Keratitis, it was the most common affection and occupied the first place among the corneal affections. It was recorded in 98 cases (55 horse, 23 donkey and 20 mule) represent 10.60%.

Superficial keratitis was recorded in (46) cases. It occupies the first place among different forms of keratitis. The different forms of superficial keratitis that were recorded included:

Superficial punctate keratitis, It was recorded in 29 cases (19 horse, 8 donkeys, and 2 mules) characterized by epithelial and sub epithelial opacities.

It appeared either in the form of tiny white dots, round, oval areas or even patches (Fig 14). The involved portion of the cornea was stippled in appearance. The rest of the cornea was still translucent and there was no corneal vascularization

The second type of keratitis was *superficial diffuse keratitis (pannus)*; it was recorded in 17 cases (7 horses, 7 donkeys and 3 mules) it is characterized by subepithelial connective tissue infiltration with superficial vascularization of the cornea. The opacity and the superficial vascularization were continued to spread over the entire cornea. (Fig. 15).

The two types of keratitis were treated with atropine, chloramphenicol and Terramycin ointment. In case of superficial punctate

keratitis recovery occurs within one week, but in case of diffuse keratitis needed from one to two weeks to resolve.

The third type of keratitis was the *interstitial keratitis* (17 horses, 8 donkeys and 4 mules) this conditions associated with kerato-conjunctivitis. At first the cornea became bluish white in colour and cloudy. Then, the opacity was generalized and the cornea became in the form of ground glass-like appearance (Fig.16). The deep ciliary vascularization was characteristic in such a condition. The newly formed blood vessels radiated from the limbus in parallel lines. They were directed towards the center of the cornea where they terminated in a series of loops, which collectively formed a circle. Most of the cases undergo medical treatment with atropine and chloramphenicol or gentamycine eye drop and a parenteral antibiotic recovery occurred within 6 weeks. One case underwent enucleation as result of perforation of the cornea.

The last type of keratitis was the *ulcerative keratitis* that was recorded in 5 cases of horses. The most characteristic symptoms observed in the affected cases were ulcer formation and loss of transparency with corneal vascularization. The ulcer in this case was central and rounded with well edges (Fig.17). Sever blepharospasm and photophobia with continuous epiphora was observed. Intensive medical treatment used with atropine, chloramphenicol with gentamycine eye drops. The ulcer was diminished after 4 weeks and replaced by scar tissue.

Keratitis sicca was observed in 18 cases, (11mule and 7horse), it was characterized by dryness of the cornea and usually there was blepharospasm and photophobia with severe conjunctivitis (Fig. 18, 19). There was hyperkeration of the corneal epithelium. The case was neglected for

a long period and the cornea appeared as turbid milky in colour and not responded to any medical treatment. In some cases, aqueous tear production may be only marginally reduced, resulting in recurrent or persistent conjunctivitis with little obvious corneal involvement.

Corneal abscess

Corneal abscess recorded in 45 cases (25 horse, 5 donkey and 15 mule) represent 4.87%. There was a white opaque opacity at the cornea of the right eye (Fig.20). The case history of this cases was abrasion of the cornea and the treatment not enough to become heal. After one month, the abrasion resolved but leaved opacity in the cornea. The horse not responded to any antibiotic and any ant-inflammatory ophthalmic treatment. In the other cases, the ophthalmic examination revealed focal yellow-white corneal opacities, corneal vascularisation and evidence of iridocyclitis.

Keratoconjunctivitis

In our study, *keratoconjunctivitis* was more common; it was recorded in 78 cases (32 horses, 25 donkeys and 21 mules) represent 8.44%. The more common causes of the affections were accidents from road or stable. The most characteristic clinical symptoms observed were conjunctivitis, severe keratitis with odema and complete loss of transparency of the cornea and superficial and deep vascularization, with or without ulcer formation (Fig.24). The treatment was done by application of boric acid 4%, hot fomentation, atropine with antibiotic eye drops and ointments for a period from 1-3 weeks. Complete recovery was occurred in all animals expect one case which undergo enucleation because the perforation of the cornea was occurred.

Globe

The surgical removal of globe was attended into 3 cases in horse, the first one suffering from severe uveitis associated with deep keratitis and then perforation to the cornea without response to medical treatment, enucleation was recommended. The second case suffering from keratoconjunctivitis with severe ocular trauma with perforation of the cornea from nails causing a painful blindness eye and the last case suffered from Squamous cell carcinoma grade II (Fig. 22). The case put under general anaesthesia and local infiltration anaesthesia around the eye. The transpalpebral techniques of enucleation were done in the three cases. After suturing the eyelid an incision around the eyelid margin was done and then blunt dissection posterior without breaking into the conjunctiva sac. The extra ocular muscles were transected and the optic nerve and associated blood vessel were subsequently clamped and ligated and transected. A two-layer skin closure was performed. The soft tissues of the orbit were closed with a simple continuous pattern using 3/0 absorbable suture and 0 nylon in simple interrupted sutures were used to close the skin incision. The drain was put for about 3 days (Fig.23). The microscopic examination of the right eye mass excision biopsy revealed malignant epidermoid tumor. Consisting of moderately differentiated squamous cell masses. Exhibiting nuclear pleomorphism. Hyperchromasia, with infiltration of underlying stroma. There was scleral and retinal infiltration. Besides there were foci of necrosis (Fig. 24). Complete recovery was occurred in all cases 5-8 weeks post surgery.

Lens

As regard of lens affection cataracts was recorded in 18 cases (8 horses and 10 mules) represent 1.94%. Were mostly lenticulocapsular cataracts (Fig. 25). The predisposing causes of cataract were uveitis, trauma and

congenital lesions. Many horses with acquired focal cataracts continue to perform well and require no treatment.

Lacrimal apparatus

The most affection that was recorded in the lacrimal apparatus in 80 cases in donkey was histoplasmosis (Fig. 26) at Edfu Brook clinic in Upper Egypt represent 8.65 %. There was a slight conjunctivitis, abnormal overflow of tears (epiphora) with inflammation of lacrimal sac (dacrocystitis) Resulting of obstruction of lacrimal duct with increase tear production (over flow) resulted of a very characteristic large area of dermatitis (tear eczema) starting below the medial canthus of the eye and spreading downwards in the direction of the nasal opening (Fig. 28). In some cases in the later stage there was inflammation of the eyelids. The lower eyelid in particular became thick and there was spasmodic contraction of the lids. In some cases there was granulomatous fleshy over-growth over the puncta lacrimalis, and adjacent tissue. Removal of the necrotic tissue from the palpebral lesions was performed and washing the duct with boric acid 4% and in some case with 0.2% povidone-iodine saline solution and chloramphenicol eye drop was used (Fig.27) In some case aminoglucoisides eye drop prepared from, 2 ml of Amikacin 100mg +13ml from artificial tear, this drops was given every 6 hours. The skin eczema treated with radiol jell. Recovery was attained 3 month later.

Dacrocystitis was recorded in one horse represent 0.1%(Fig. 29); there was excessive mucopurulent ocular discharge from both eyes with observed inflammation of the conjunctiva. Putting the horse under sedation and squeezing of the necrotic tissue from the duct and washing it with 0.2%

povidone-iodine saline solution then application of antibiotic eye drop and ointment for successive seven day with giving anthelmintic dose.



Fig. (1) Acute full-thickness oblique upper eyelid laceration in an 6-year-old mule



Fig. (2) The same previous case after suturing the conjunctiva and skin of upper eyelid.

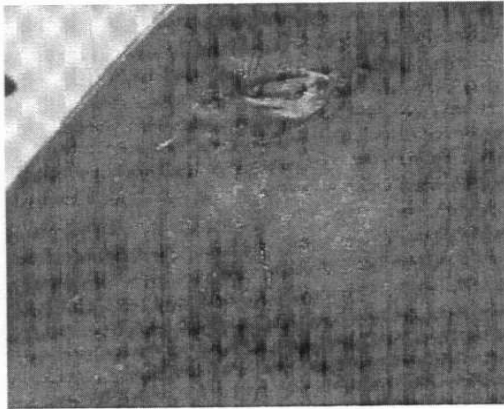


Fig. (3) Vertical incised wound of the lower eyelid in a 7-year old horse.

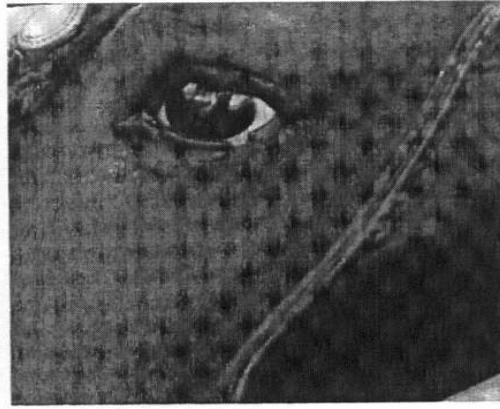


Fig. (4) The previous case after healing.

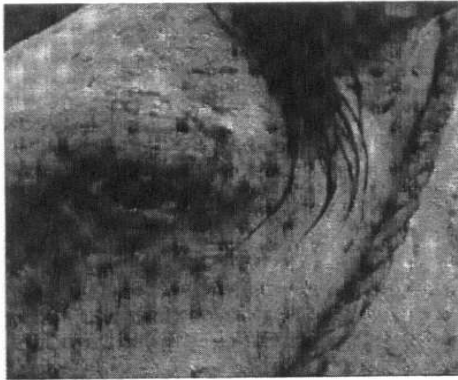


Fig. (5) A recent ventral eyelid laceration in a 7-year-old horse.



Fig. (6) The previous case after suturing the conjunctiva and eyelid.

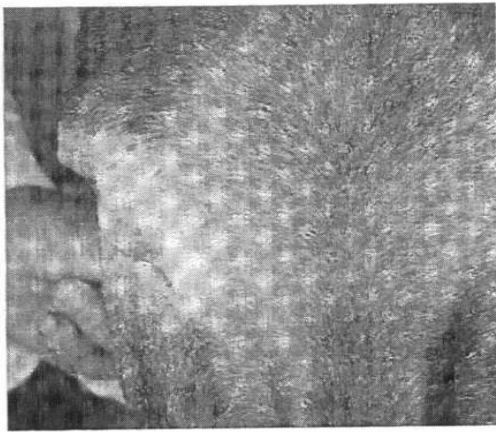


Fig. (7) Tumor near the medial canthus of the right eyelid in a 5-year-old donkey.

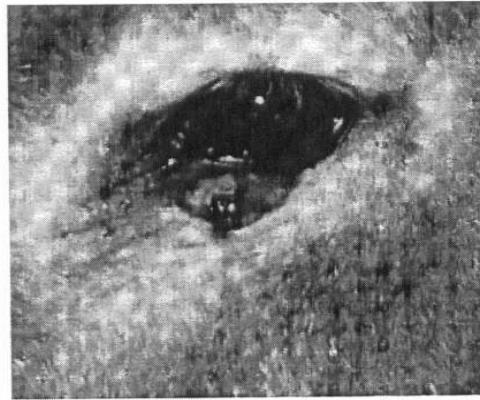


Fig. (8) Tumor under the left eyelid in a 5-year-old donkey



Fig. (9) Chronic paranchymatous conjunctivitis in a 5-year-old donkey



Fig. (10) Fracture of the supra-orbital process at the right side in a 4-year-old donkey.

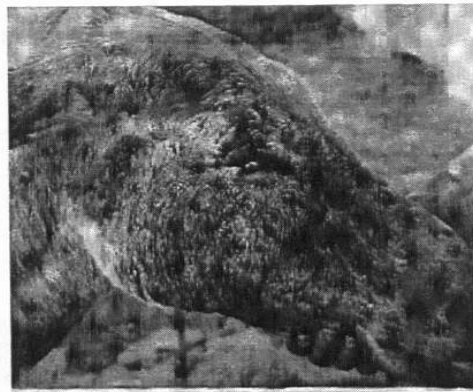


Fig. (11) The same previous case after surgical interference.

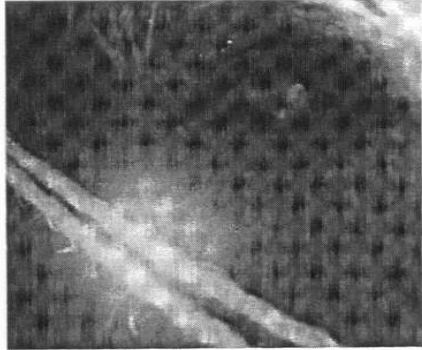


Fig. (12) Superficial abrasion in the left cornea in an 8-year-old horse.



Fig. (13) Deep laceration in a 2-year-old horse.



Fig. (14) Superficial punctate keratitis in a 3-year-old horse.

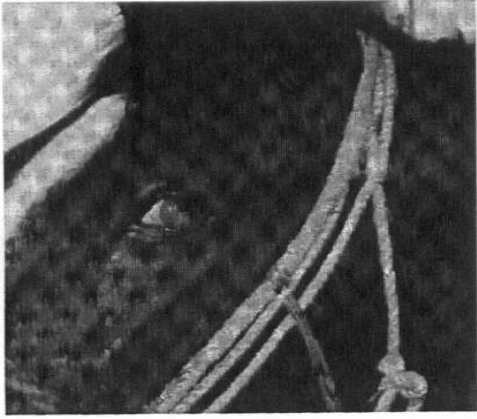


Fig. (15) Superficial diffuse keratitis in a 6-year-old horse.



Fig. (16) Deep keratitis in a 4-year-old horse

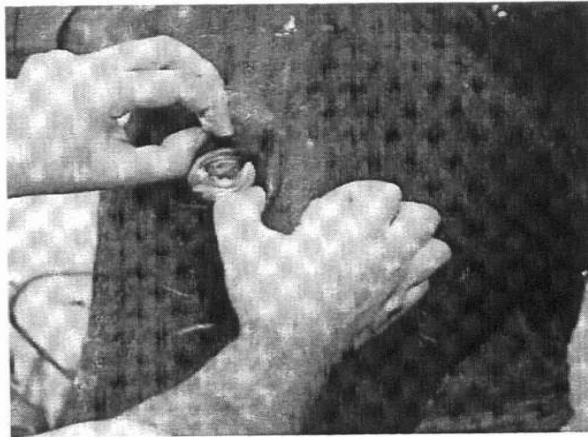


Fig. (17) Corneal ulcer in a 10-year-old horse.

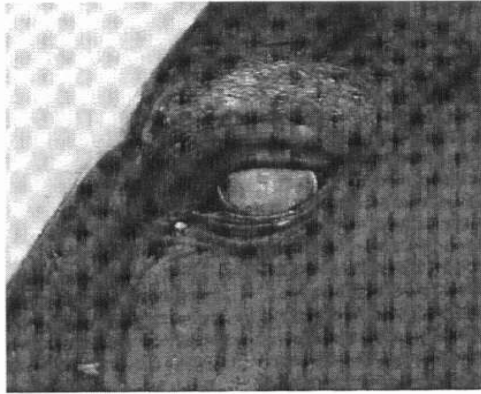


Fig. (18) Keratitis sicca in 10-year old horse.



Fig. (19) Keratitis sicca in a 12-year-old mule.

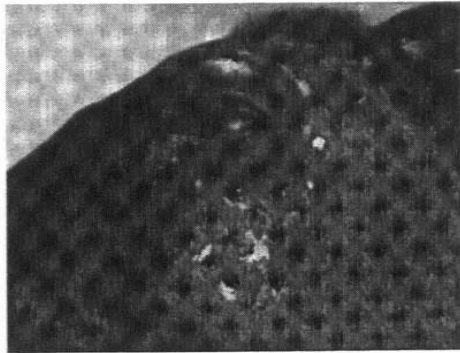


Fig. (20) Corneal stromal abscess in a 10-year-old horse.



Fig. (21) keratoconjunctivitis in a 5-year-old donkey



Fig. (22) Squamous cell carcinoma grade II of the eye in an 15-year-old horse.

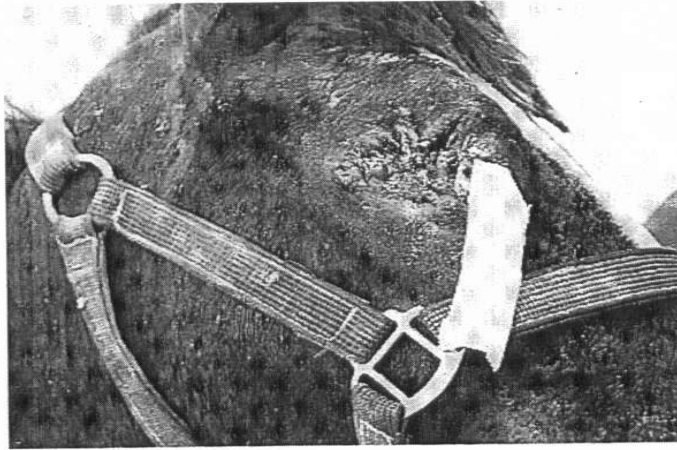


Fig. (23) The same previous case after surgical removal of the carcinoma and eyeball.

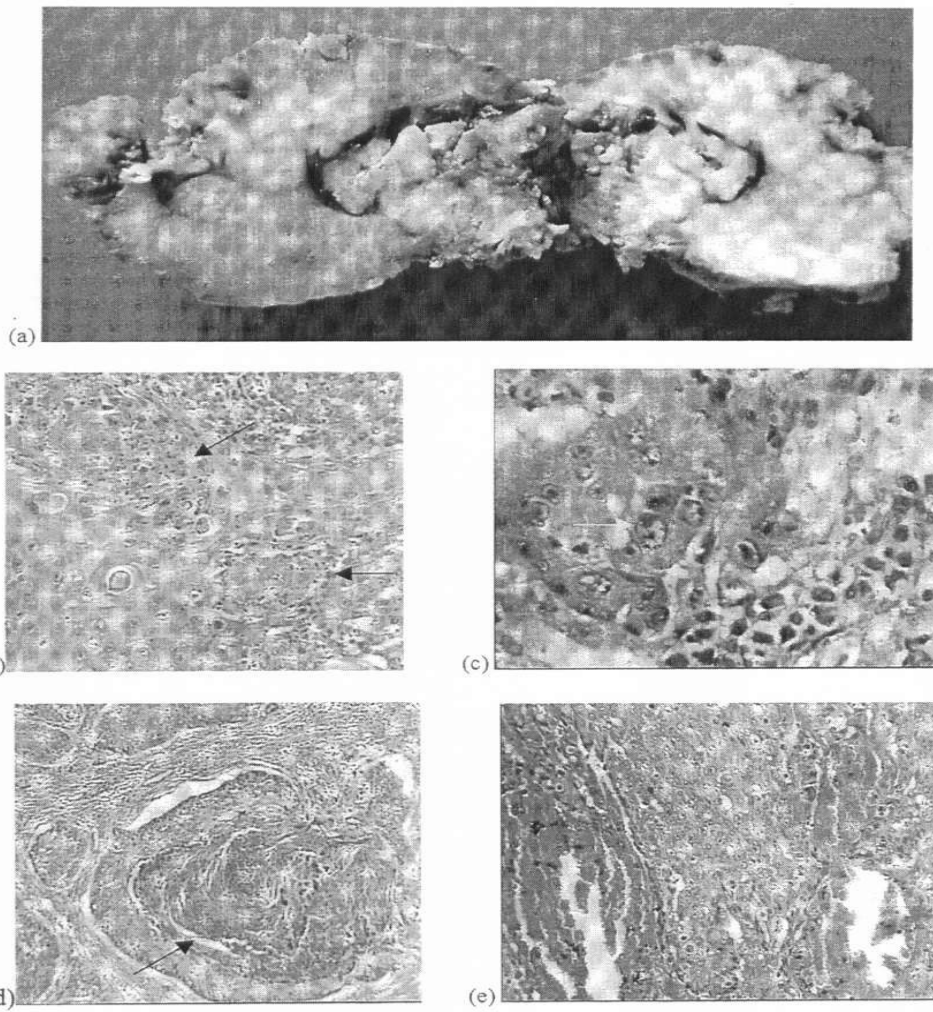


Fig. (24) Histopathology of the carcinoma removed in the case showed in Fig. (22)

- (a) Large substance of malignant epidermoid tissue replacing the eyeball.
- (b) Groups of the cell nest (arrow). H and E., X=63
- (c) Higher magnification of figure (b) to show the pleomorphic squamous neoplastic cell. Some nuclei show mitotic division (arrow). H and E., X=400
- (d) The nest cell with large central keratinization of Squamous Cell Carcinoma (arrow). H and E., X=160
- (e) Several area of hemorrhage H and E., X=160

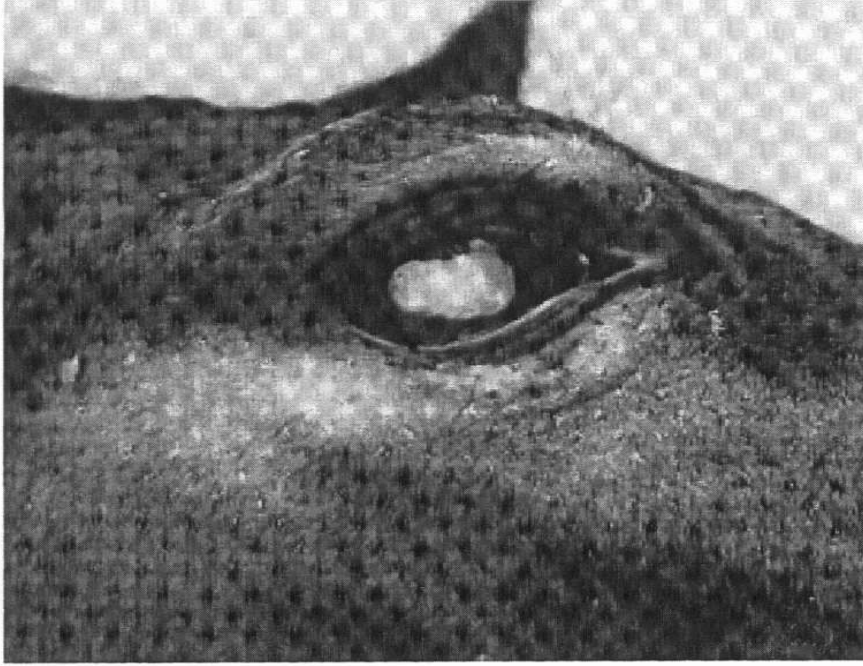


Fig. (28) lenticulocapsular cataract in an 8-year-old mule.

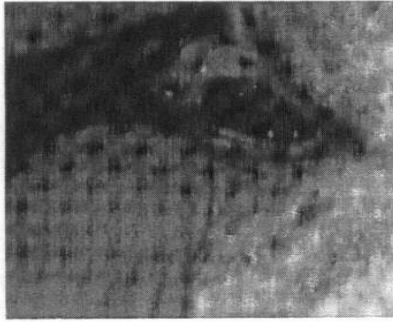


Fig. (26) Histoplasmosis of the lacrimal duct in an 8-year-old donkey.



Fig. (27) Lacrimal histoplasmosis in a 5-year old donkey.



Fig. (28) Histoplasmosis of the lacrimal sac in a 5-year-old donkey.

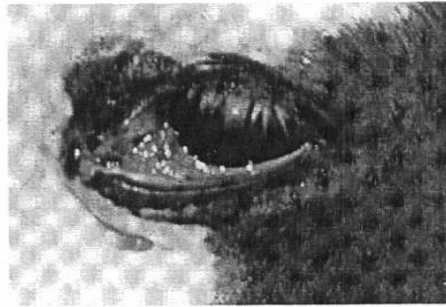


Fig. (29) Dacrocystitis in 6-year-Old horse.

Table (4) showing different oral affections on the head of the equine

Affection	Horse	Donkey	Mule	Total	%
Lip					
1. <i>Wounds</i>					
a) Recent	13	6	2	21	2.27
b) Old	25	8	9	42	4.54
2. <i>Abscess</i>	1	-	-	1	0.10
3. <i>Tumors</i>	22	3	5	30	3.24
4. <i>Facial paralysis</i>	12		-	12	1.29
Cheek					
1. <i>Wound</i>					
i) Recent	7	9	4	20	2.16
ii) Old	20	7	6	33	3.57
2. <i>Abscess</i>	4	2	-	6	0.64
Tongue					
<i>Wound</i>					
a) Recent	5	2	-	7	0.75
b) Old	15	6	5	26	2.81
<i>Ulceration of the tongue</i>	4	2	-	6	0.64
<i>Abscess</i>		1	-	1	0.10
Jaw					
<i>Maxillary fracture</i>	2	-	-	2	0.21
<i>Mandibular fracture</i>	5	4	-	9	0.97
Teeth					
1. <i>Parrot</i>	3	-	5	8	0.86
2. <i>Pig mouth</i>	-	-	3	3	0.32
3. <i>Fracture</i>	7	5	3	15	1.62
4. <i>Step formed</i>	3	2	1	6	0.64
5. <i>Sharp enamel points</i>	43	45	22	110	11.90
6. <i>Per-apical abscess</i>	-	1	-	1	0.10
Total	191	103	65	359	38.73

ORAL AFFECTIONS

(Lip affections)

-Wounds

It were recorded in 63 cases (38 horses, 14 donkeys and 11 mules) represent 6.81%

Wounds were the most common surgical affections in the lips. Recent ones were observed in lips of 21 cases (13 horses, 6 donkeys and 2 mules). A complete incised wound was observed in the lower lip in a horse (Fig. 30) caused by a car accident. The skin and oral mucous membrane were undermined (1 to 1.5cm) to separate the muscular attachments. The muscles were separated from all edge of the wound. The mucous membrane was apposed with simple interrupted sutures of 2-0 synthetic absorbable sutures. The skin was opposed with simple interrupted sutures of Vetafil synthetic suture. Healing was achieved by first intention 12 days after suturing the edges of the wound. Old lacerated wounds of the lips were recorded in 42 cases (25 horses, 8 donkeys and 9 mules). Old wounds were observed in the lower and upper lips in horses (Fig.31, 33). Trimming the edge of the old wound, removal of food debris and necrotic tissues was performed and healing was obtained by second intension after 35 days of daily dressing (Fig. 32)

Biting wounds were commonly seen in the lips of horse and they were characterized by severe edematous swelling and laceration (Fig.34, 35). Recovery was completed 3 weeks after daily dressing.

-Abscess

An abscess around the commissure of the lip was recorded in one horse represent 0.10%. It was found at the right commissure of the lip. It was a

small in size and fluctuated. Opening of the abscess, evacuation of pus and daily dressing of the abscess till it was healed (Fig. 36).

-Tumors

As regards of this study tumor was recorded in 30 cases (22 horses, 3 donkeys and 5 mules) represent 3.24%. It was found at the left commissure of the lip (Fig. 37). Surgical intervention was done to remove the tumor by making an elliptical incision over the tumor and a blunt dissection was made to separate the lesion from the surroundings. Then the skin was closed with o monofilament nylon. After 10 days the sutures were removed.

Tumor was found above the upper lip (Fig. 38). In some cases it presented around the commissure of the lip or between the two nostrils (Fig. 40, 42). It needed surgical interference to remove it by electrocautery and touching the lesion with tincture of iodine 2.5% (Fig. 39, 41, 43).

-Facial paralysis

In our study facial paralysis was recorded in 12 horses, represent 1.29%. The lower lip was hanged loosely on the affected side (Fig. 44, 45). The upper lip was dropped and the nostril was collapsed it was resulted from paralysis of the facial nerve. The food and water were drooped from the mouth. The medical treatment that was done by giving the animal vitamin B complex and hot fomentation. There was no respond to the treatment in all cases.

Check affections:

-Wounds

Were recorded in 53 cases (27 horses, 16 donkeys and 9 mules) represents 5.73 %. Contused wounds were observed at the left check region in 5-year-old horse. (Fig. 46), this was caused by trauma from another animal. It was treated by applying hot fomentation and ichthyl ointment and disappeared within 5 days.

The recent wounds of the check were recorded in 19 cases (7 horses, 9 donkeys and 3 mules). They were very common in donkeys especially in Upper Egypt in which the donkeys put with the buffalo in the same place during feeding resulting of a deep lacerated wound from the horn of the buffalo in the cheek of donkey (Fig. 47). The laceration also occurred due to road accident. After freshing of the wound, suturing the muscle with simple interrupted suture using No. 2 chromic catgut and the skin was closed a with simple interrupted suture. A course of anti-inflammatory and antibiotic were given for 5 day. After 12 days the wound have been complete healed.

Old wound of the cheek was recorded in 33 cases (20 horses, 7 donkeys and 6 mules). Most of them were caused by a bite from another animal or due to road accident (Fig. 48). All of them were healed by second intention after daily dressing by using Betadine, Dermobion ointment or glycerin maniza and systemic antibiotic. The healing took place in 15 to 25 days.

-Abscesses

The more common cause of abscess at the region of mandible was strangles (Fig. 49), it was recorded in 6 cases (4 horses and 2 donkeys) represent 0.64%. Lymphadenopathy was the major clinical finding. The

infection spreads to the intermandibular and parapharyngeal lymph node.. Maturation of the abscess was performed using ichthyl ointment, and then it was incised, evacuated and drained then systemic antibiotic of penicillin for 7-10 days was given

Tongue affections

-Wounds

It was recorded in 33 cases (20 horses, 8 donkeys and 5 mules) represent 3.56 %. Laceration of the tongue resulted from road accident. The recent perforating wound of the tongue extended from the dorsal to the ventral surface (Fig. 50). The recent wounds were recorded in 7 cases (5 horses and 2 donkeys) represent 0.75%. Surgical interference was performed for suturing of the wound at the dorsal surface with horizontal mattress pattern (Fig. 52) and the ventral surface of the tongue was sutured using a simple interrupted pattern (Fig. 51). After 10 days complete healing occurred leaving a scar tissue (Fig.53). A case of recent superficial wound was observed at the dorsal surface of the tongue (Fig. 54). It resulted from eating a sharp object and the healing occurred with second intention by washing the mouth with alum solution and using of cod liver oil. Healing occurred after 10 days.

Old wounds of the tongue were very common and were recorded in 26 cases (15 horses, 6 donkeys and 5 mules) represent 2.81%. An old wound of the ventral surface of the tongue was observed (Fig. 55), it was resulted from a sharp object or from a bad bit. The wound was filled with mash and putrefied food. Washing the wound with H₂O₂ and putting cod-liver oil with gentian violet 1%. The wound healed by second intention after 20 days.

An old wound of the tongue characterized by deep laceration at the dorsal surface of the tongue (Fig. 56) the healing was obtained after refreshment of its edge and removal of food debris. Horizontal mattress suture was used to close the wound (Fig. 57) and the suture was removed after 10 days.

-Ulceration

Ulcer of the tongue was common in equines and resulted from a bad bit. Tongue ulcer was recorded in 6 cases (4 horses and 2 donkeys) represent 0.64 %. The ulceration was observed on the dorsal surface of the tongue and characterized by unhealthy tissue and necrosis (Fig. 58, 59). Treatment of the ulcer was performed by removal of the necrotic tissue, washing the ulcer with H₂O₂ and daily dressing with tincture of iodine.

-Abscess

Abscess of tongue recorded in a donkey represent 0.1% at the ventral surface of the tongue. By opening the wall of abscess and evacuation of the secretion s then applying cod liver oil. The condition was recovered 7 days later.

Jaw affections

-Fracture

Were recorded in 11 cases (7 horse and 4 donkey) represent 1.18%. In this work, the maxillary fracture recorded less common than mandibular fracture. It recorded in two horses only represent 0.21%. There was incomplete separation of the upper incisors teeth with the rostral bone of the maxilla (Fig. 60). The fracture was linear in shape and extended above from 2nd incisor to 3rd incisor from another side. Following sedation and local anesthesia, treatment

began with cleaning and debridement of the fracture line. Feed and blood clots and small fragment of bone were removed from the fractured. Antiseptic solution (0.2% povidone-iodine salt solution) was used to lavage the wound. Alignment of the fracture was maintained by an assistant and then wiring the incisors of the incisive bone together, Laceration and tears of the gingival mucosa was sutured by simple interrupted suture (Fig.61). Fractured teeth were removed and penicillin procaine was given to the horse for 5 days. After 5 weeks, the wire was removed with complete recovery.

The prevalent fracture of the jaw was mandibular fracture. It was recorded in 9 cases (5 horses and 4 donkeys) represent 0.97%. Moreover, it usually accompanied with tooth fracture. There was separation of the right half of the incisor with a bone of mandible. (Fig. 62) Treatment was performed by using a stainless wire {Kirschner wire}, passed around the fractured teeth and the healthy one to fix the fracture (Fig. 63). In some cases, the stainless wire need to pass between the teeth in holes placed slightly below the gum line to prevent the wire from slipping over the teeth when tightened. After 5 weeks the wire removed and the animal, appear in a good condition. In some cases where the fracture was small, the treatment done by removal of the fracture portion of the tooth and the mandible; it was left to heal by second attention.

Teeth affections

It recorded in 143 cases (56 horses, 54 donkey and 34 mule) represents 15.44%.

-Congenital

As regards of the congenital affection of the tooth, the *parrot mouth* (inferior brachygnathia) recorded in 8 cases (3 horse and 5 mule) represent 0.86%. The affected horses were considering unsound and abnormal incisor

position resulted of abnormal wearing and over growth. The central incisors develop a rabbit-toothed appearance and a characteristic by parrot beak over hangs of the upper incisors (Fig. 64). One case was accompanied with abnormal molar wearing in the affected teeth. Treatment involves regular rasping or sawing of the incisor arcade every six month.

Superior bradygnathia (monkey, sow or hogg mouth) was more rarely encountered and it was recorded in 3 mules represent 0.32% (Fig. 65). This defect was not common as parrot mouth. The incisors of the upper jaw made injuries of the soft tissue of the lower jaw. Treatment involves regular rasping of the affected teeth.

-Fracture

The second common affections of teeth were fracture. It was recorded in 15 cases (7 horses, 5 donkeys and 3 mules) and it was very common on the old animal. (Fig. 66), The most common cause of fracture was road accident that resulted of fracture of third incisor tooth (Fig. 68). Treatment was competed by extraction of the fractured teeth.

-Stepformed teeth

Step formed mouth was recorded in 6 cases (3 horse, 2 donkey and 1 mule) represent 0.64%. This due to absent of the opposing teeth (Fig. 67) or due to unequal wearing of opposing teeth in the dental arcade (Fig.70). Rasping or cutting the elongated tooth did treatment.

-Sharp enamel point

The first common affection among the teeth was a sharp enamel points. It recorded in 110 cases (43 horses, 45 donkeys and 22 mules) represent

11.90%. The sharp enamel points caused buccal and lingual ulceration, the severity of the lesion range from mild to severe. The symptom characterized by dropping of the food particle from the mouth, salivation and difficult in mastication with offensive odor coming from the mouth. The sharp enamel was treated by regular floating of the sharp teeth and put gentian violet 1% to the gum (Fig.69, 70).

-Per-apical abscess

It recorded in one donkey represent 0.10% and characterized by fluctuating swelling under the bone of the mandible. The swelling was hot, painful (Fig.71). There was no difficult of mastication. Surgical interference to opening the abscess by using scalpel and cleaning the wall of it with H₂O₂ and applying Tr. Iodine 2.5% and maintain the animal in antibiotic course. Healing was obtained after 2 weeks.



Fig. (30) Incised wound in the lower lip
in an 8-year-old horse

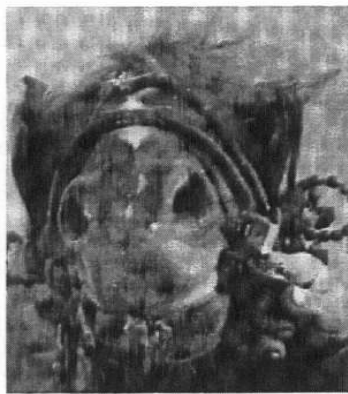


Fig. (31) Old lacerated wound of the
lower lip of 5-year-old
horse.



Fig. (32) The same previous case
after complete recovery.

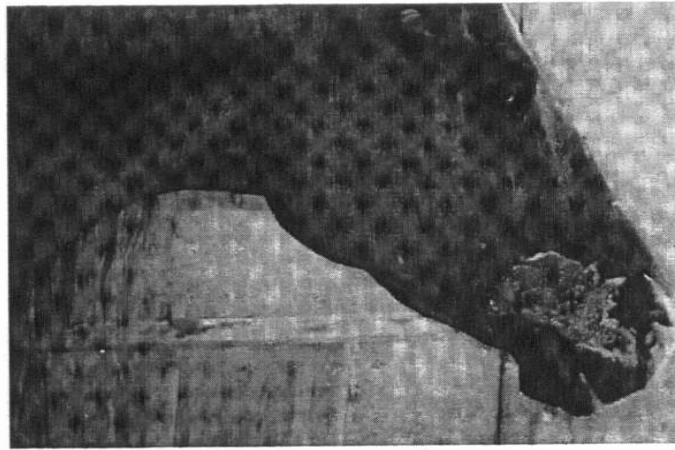


Fig. (33) Old wound on the right side of the upper lip in a 5-year-old horse.

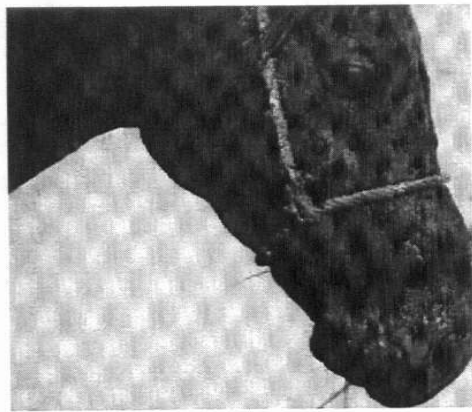


Fig. (34) An edematous swelling of the lips from a biting wound in 6-year-old horse.

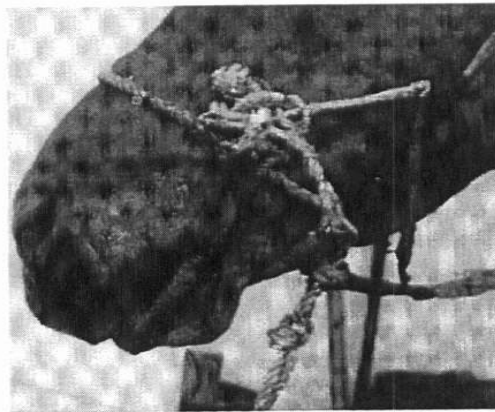


Fig. (35) Biting wound at the upper lip in 8-year-old horse.

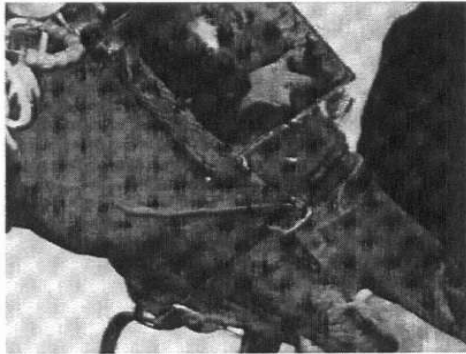


Fig. (36) Acute abscess of the lower lip in an 8-year-old horse.



Fig. (37) Tumor on the left commissure of the mouth in a 6-year-old donkey.

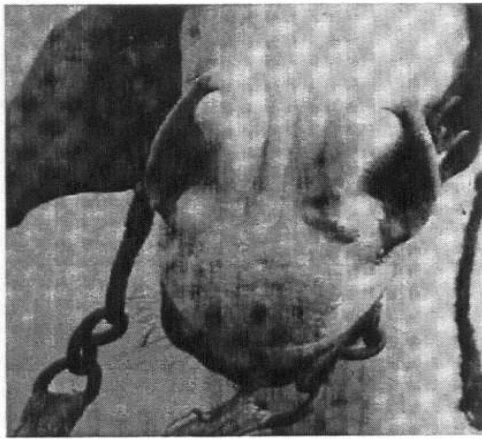


Fig. (38) Tumor on the upper lip of a 7-year-old horse.

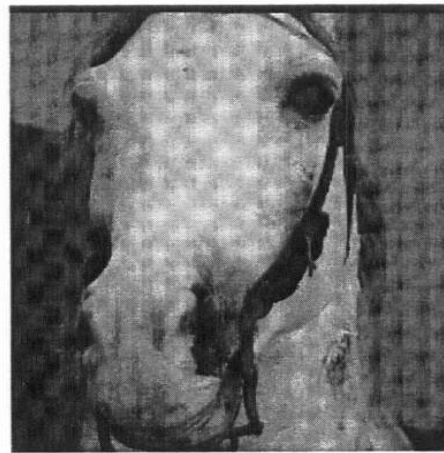


Fig. (39) The same previous horse post removal of tumor.

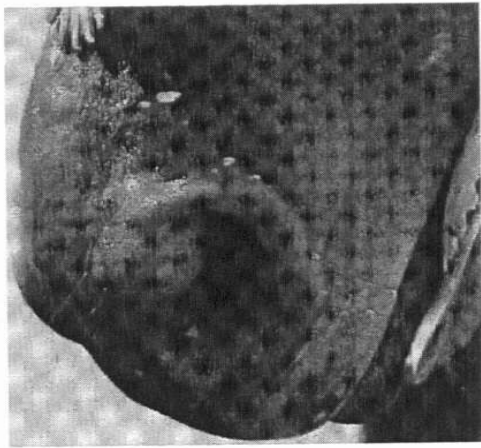


Fig. (40) Tumor in 2-year-old horse.



Fig. (41) The same previous case after removal of the tumor.

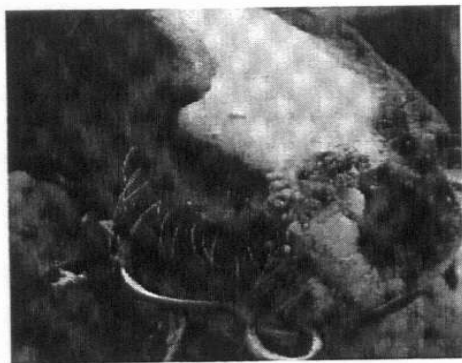


Fig. (42) Tumor between the two nostrils of a 2-year-old horse.

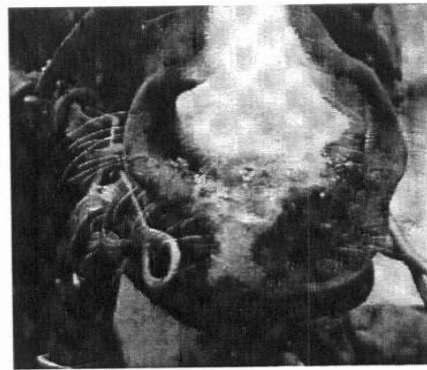


Fig. (43) The previous case after removing of the tumor.



Fig. (44) Facial paralysis in a 12-year-old horse.



Fig. (45) Facial paralysis in a 17-year-old horse.

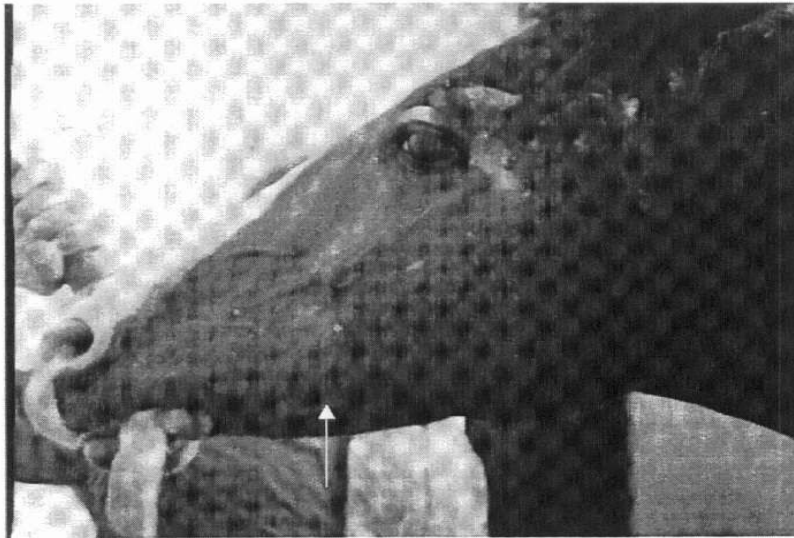


Fig. (46) Contusion at the left check region in 5-year-old horse.



Fig. (47) Recent musclocutaneous wound on the left check of a 6-year-old donkey.

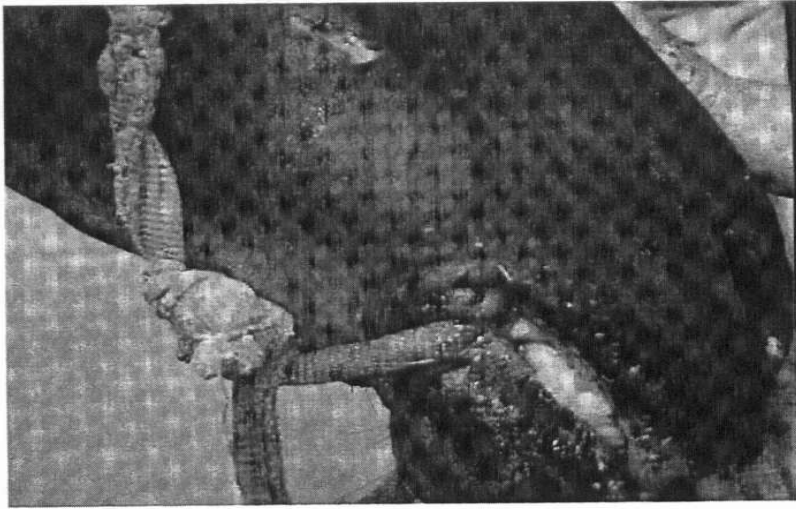


Fig. (48) a biting wound on the right check in 6-year-old horse.

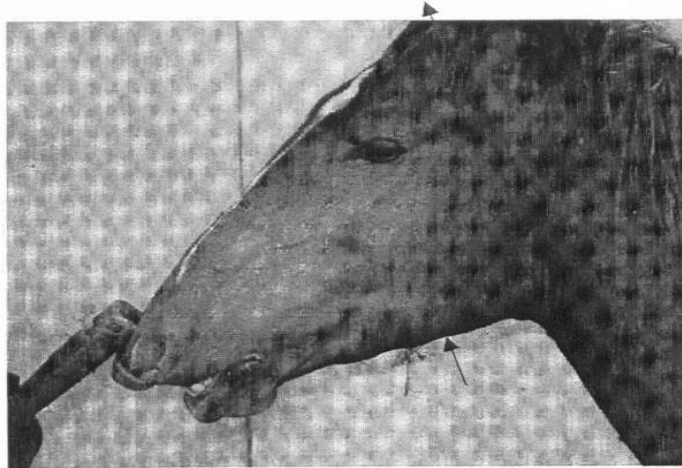


Fig. (49) Abscess of the mandibular lymph node in a 3-year-old horse.

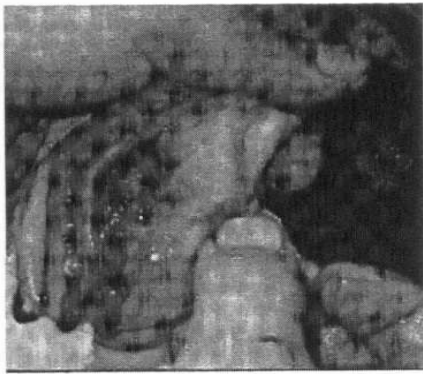


Fig. (50) Perforating wound on the tongue of a 5-year-old horse resulting from a car accident.

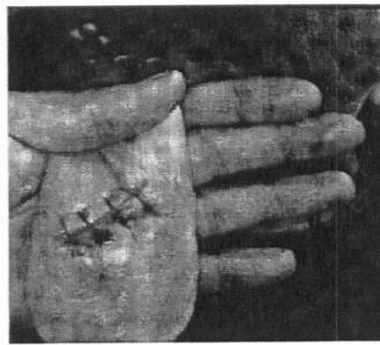


Fig. (51) The same previous case after suturing the ventral surface of the tongue suture with simple interrupted suture.

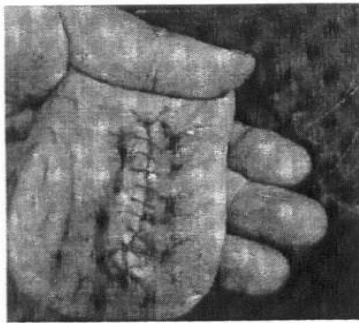


Fig. (52) The same previous horse after suturing the dorsal surface of the tongue with a horizontal mattress and simple continues suture.

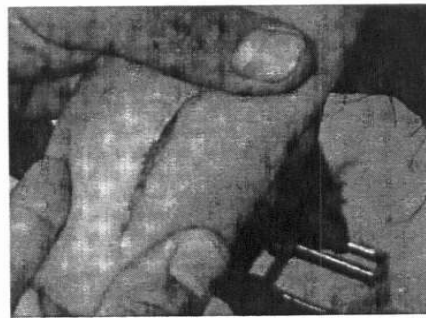


Fig. (53) The same previous horse after complete recovery.



Fig. (54) A recent incised wound of tongue in a 7-year-old horse.



Fig. (55) An old wound on the ventral surface of the tongue in a 5-year-old donkey.



Fig. (56) Old wound in a 5-year-old donkey at the rostral portion of the tongue.

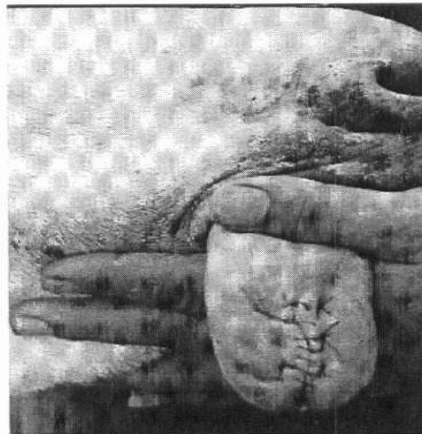


Fig. (57) The same previous donkey after suturing the tongue with a horizontal mattress and simple interrupted suture.



Fig. (58) Superficial ulcerative wound on the dorsal surface of an 18- year-old horse.

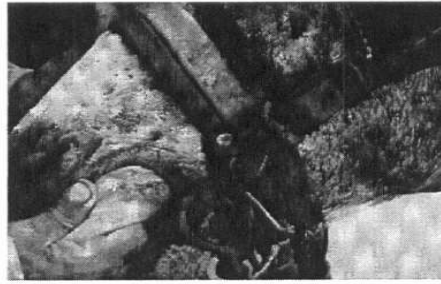


Fig. (59) An ulcerative wound on the dorsal surface of the tongue in 7-year-old donkey.

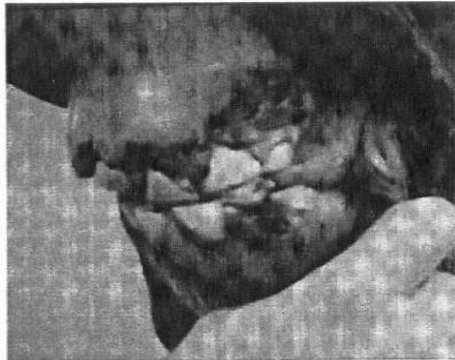


Fig. (60) Premaxillary fracture of the upper incisive teeth in a 2-year-old horse.

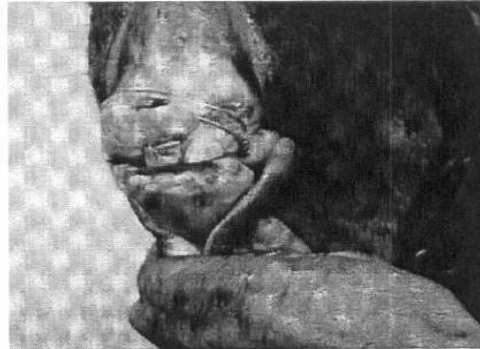


Fig. (61) The use of stainless steel wire to correct the fracture in the previous case.

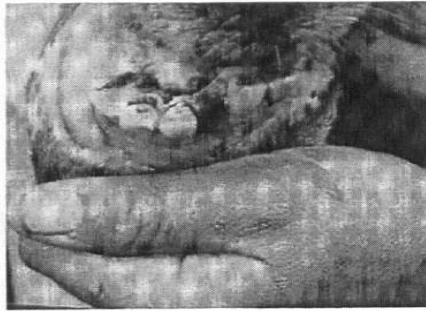


Fig. (62) Mandibular fracture in a 4-year-old donkey.

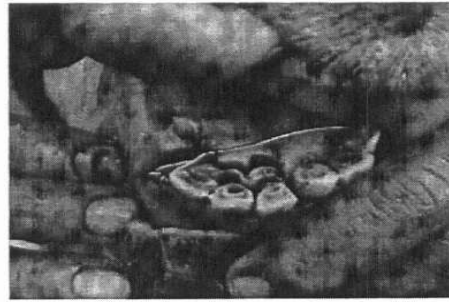


Fig. (63) The same previous case with using stainless steel wire to fix the fracture.



Fig. (64) Parrot mouth in a 25-year-old horse.



Fig. (65) Pig mouth in an 18-year-old mule.

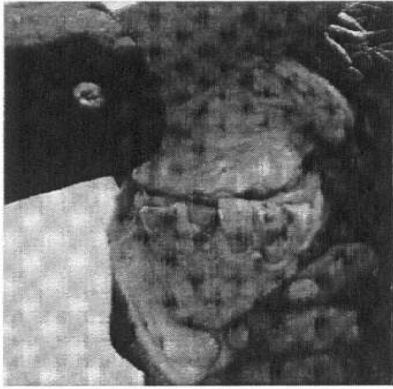


Fig. (66) Transverse fracture of the center incisor in a 25-year-old horse and loss of the upper incisor teeth.



Fig. (67) Elongation of 1st premolar of the lower jaw in a 12-year-old horse.

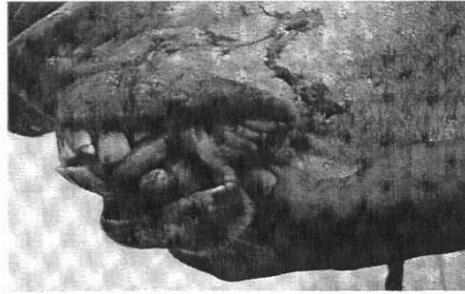


Fig. (68) Fracture of the 3rd incisor tooth in 8-year-old donkey.

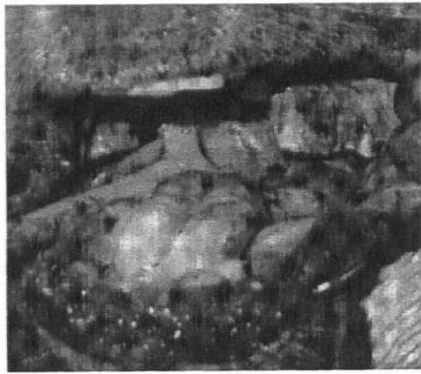


Fig. (69) Sharp enamel points in a 5-year-old donkey.

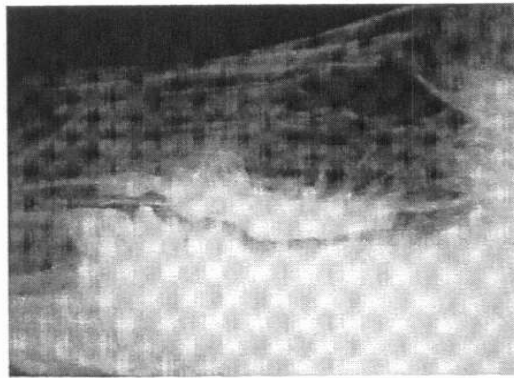


Fig. (70) X-ray film showing step formed mouth in a 10- year-old donkey.

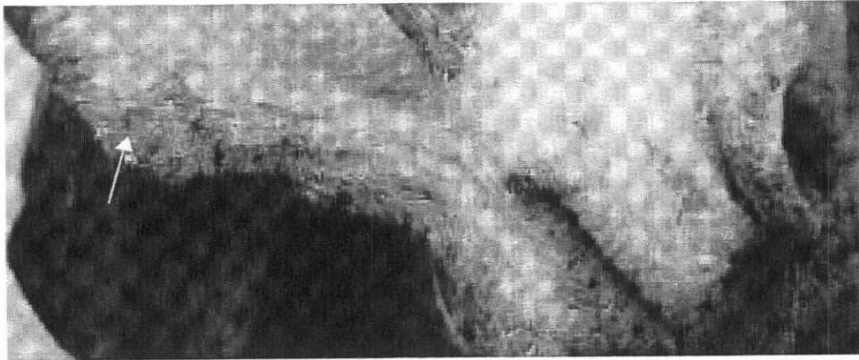


Fig. (71) Periapical abscess in 12-year-old donkey.

Table (5) Affections of the nostrils and face.

Category	Horse	Donkey	Mule	Total	%
Epistaxis	8	3		11	1.19
Wound (old)	1			1	0.10
Osteodystrophia fibrosa	4			4	0.43
Total				16	1.73

Epistaxis

Epistaxis was resulted from road accident and it recorded in 11 cases (8 horses and 3 donkeys) represent 1.19%. There was a bright red color blood coming from the nose and in the next day become brown in colour (Fig. 72). Treatment performed by putting ice bag over the head area and rise the head of the horse high. In some cases, epinephrine was used locally inside the nose to make coagulation of the blood. In the severe cases of epistaxis, the animal was given intravenous injection of vitamin K amp. and dextrose 5% infusion.

Wound

It was recorded in one horse represent 0.1%. An old fashion some owner made a wound at the nostril (Fig. 73) to increase the amount of air, which enter the lung and that increase the effort of the animal to work more. It was wrong behavior and interfered with the cosmetic shape of the animal.

Osteodystrophia fibrosa

Osteodystrophia fibrosa recorded in four horses represent 0.43%. (Fig. 74), in all cases the horse depressed his head down and there was marked dyspnea, there was difficult in mastication, loss of appetite and signs of emaciation. Trachestomy was indicated, tracheal opening was done to improve the respiratory function.



Fig. (72) A bilateral epistaxis
in a 9- year- old horse.



Fig. (73) An old wound of the
external nostril in an 8-year-old horse.



Fig. (74) Osteodystrophia fibrosa of
a 10-year-old horse.

Discussion

In the present study ocular affections were encountered in the eyelids, conjunctive, supraorbital process, cornea, globe, lens and lacrimal apparatus.

Concerning eyelid affections, conjunctivitis and wounds represent the most common disorders in equine. Recent and old wound of the eyelid were caused by trauma during accident or from sharp objects as barbed wire. These wounds took more efforts for trimming the edges and coaptation. While *Parker and Habin (1994)* mentioned that laceration of the eyelid might cause out right corneal and/ or conjunctival diseases or predispose the horse to such ocular conditions. Using of topical broad spectrum antibacterial after suture of the eyelid laceration. Eyelid laceration less than 4 hours old can be prepared for surgery immediately. Laceration between 4-12 horse may be treated surgically unless excessive odema and severe contamination. This result are in agreement with that mentioned by (*Rebhun 1991 & Stashak 1991*)

On the other hand other form of conjunctivitis caused by habronemiasis and horse fly producer granulomatous lesion in the medial canthus of the eye and conjunctival sac. Combination of dimethyl sulphoxid and dexamethasone suspended in nitrofuracin ointment applied to open wound or under bandage to reduce granulation tissue. This results are agreement with that mentioned by (*Knottenbelt & Pascoe 1994, Rebhun 1996*)

Corneal abrasions were observed in horses and donkeys that may be superficial or deep laceration. The cause was sharp object or bad using of a whip on the eye. Superficial or partial laceration could be treated with good prognosis within 3 weeks, but in case of deep laceration of the cornea recovery took 5-7 weeks. This will agreed with Gelatt (1975) who stated that full thickness laceration of the cornea are the most severe and can result in visual

impairment and in extensive case lead to blindness. While Lavach et al. (1984) mentioned that in case of sharp laceration of the cornea only has better prognosis than those affecting both cornea and sclera or blunt laceration, respectively and Ismail (1984) who recorded that corneal lesions occupy the first place among different ocular diseases in domestic animals.

Concerning keratitis, in the present study was recorded in 4 forms in horses and donkeys; first form was superficial punctate keratitis, superficial diffuse keratitis, keratitis sicca and the second form deep keratitis or interstitial keratitis and ulcerative keratitis. The same results were obtained by Gelatt (1981) which classified keratitis into superficial interstitial and ulcerative. On the other hand Magrane (1974) classified keratitis into superficial punctate keratitis, superficial dystrophies, superficial vascularization pannus, exuberant granulation tissue, keratitis sicca. While Ismail (1984) recorded five forms of superficial keratitis as, superficial punctate keratitis, superficial diffuse keratitis, superficial vascularization, exuberant granulation tissue and keratitis sicca. In some cases of keratitis we observed subjective symptoms as pain, photophobia, lacrimation and blepharospasm. The same results agreed with that of (Gertsen, et.al.1973). The main cause of different form of keratitis was bad management of the animal especially the using of web over the head and eye. Local application of eye lotion as boric acid 4%, chloramphenicol and gentamicin sulphate proceeded by local application of atropine sulphate to be suitable treatment for superficial and deep keratitis in horses. In the same time, Smyth (1958) used Mydriatics and antibiotic for the treatment of keratitis especially in the abscess with corneal ulceration and glaucoma. While Mathew and Handscombe (1983) advised to application of 0.5% idoxuridine eye ointment for 4 to 7 days for treatment of superficial keratitis in horse. On the

other hand Millichamp (1992) and Rebhun (1991) recommended conjunctival flap for the treatment of ulcerative keratitis in horse.

Corneal abscess was reported in all species of equines local treatment by application of antibiotic ointment gave poor result of recovery. While Hendrix et. al. (1995) concluded that surgical procedure include keratotomy with conjunctival flap produce somewhat successful recovery of the corneal stromal abscess.

In our work three cases of perforating wound with infected sharp foreign body or severe uveitis and malignant tumor. Surgical extirpations of the eyeball proved to be the radical treatment. Our results are agreed with that mentioned by Brooks (1992) who stated that enucleation of the eye globe and nictating membrane was indicated in case of malignant tumors.

In our study cataract was recorded more frequently in horses and mules especially in old aged animals, which produced complete blindness of the animals. The same results were achieved by Rebhun (1991) who mentioned that acquired cataracts were occurred in horses of all breeds. Their pathogenesis was unknown. Some of these cataracts may due to genetic conditions, but this had never been confirmed. Cataract extraction in adult horse was extremely difficult and fraught with many potential complicated instrumentation. Many horses with acquired focal cataracts continue to perform well and require no treatment, while Parker and Habin (1995) recorded that the onset of cataract formation could be congenital, developmental or senile. In this study there is no attempt to treat any case of cataracts, as it was so expensive and require proficient ophthalmologist and stick precaution post operation.

Histoplasmosis was recorded only in donkeys, which lived in Upper Egypt. This infection was characterized by glaucomatous lesion in the lacrimal sac with closure of the nasolacrimal sac, which was characterized by excoriation of the skin beneath the medial canthus of the eye. This infection was found usually bilaterally, while Saleh (1989) reported that clinical symptom of histoplasmosis in donkeys were restricted in lacrimal drainage system. The infection coming from the dust and began by conjunctivitis, blepharospasm and epiphora causing tear eczema (dacrocystitis) and granulomatous lesion on the puncta lacrimalis. Treatment for histoplasmosis in donkey including squeezing of necrotic tissue, lacrimal sac, and extirpation of third eyelid. Medial canthotomy, removal of granulomatous tissue and using of zinc oxide in skin eczema were recorded.

Surgical treatment of the wounds of the lips and tongue was performed in both recent and old wounds. These results were agreed with Colahan (1991) who stated that good surgical technique must be performed for reduction of contamination by debridement, lavage and appose the deep tissue to reduce the dead space and close the skin carefully using tension suture on the external surface only.

On the other hand, old septic wounds of the check or upper part of the lips must be treated by application of dressing material to provide healing with secondary intention.

The prevalent sites of the abscess formation in equine were recorded in check, lips, submandibular, neck and tongue. The causes of local suppurative inflammation were strangles, infection, caustic material or drugs and sharp foreign body like plant fork.

The mandible fracture was frequently seen more than maxillary fracture. The most common causes were accident or blunt trauma and kicking from another animal. In the most cases stainless cerclage wires were used in treatment. The same results were obtained by Tremaine (1998) Affected animal become inappetance, quidding, slow eating, halitosis, salivation, oral hemorrhage, mandibular swelling and pain. Diagnosis was confirmed by visual and digital palpation and different radiographic views. In addition, Asquith (1979) used the cerclage wire in the treatments of the fracture. On the other hand, Blackford and Blackford Lee (1992) recommended cross pinning when cerclage wire fixation was inadequate in cases of bilateral fractures of the interdental space, symphyseal fractures and some fracture of the rostral incisive body. While Meagher and Trout (1980), Sullins and Turner (1982) added that using dynamic compression plates. it is useful in decreasing the fracture gap while providing stability across fracture lines.

The congenital affection of the teeth that met with parrot mouth, which was more recorded than pig mouth. Using a regular rasping interval in some way to lessen these defect. These results were in agreement with Blackford and Blackford lee (1992) who mentioned that overbite and underbite was congenital abnormality. Parrot mouth was more common than sow mouth. It was easy diagnosed from the visual examination. It was treated by regular dental care or by surgical method in which the cerclage wire contact between the premolars and incisor tooth and remove when the incisors are aligned.

The most common cause of fractured tooth was road accident or as a result from pushing the mouth to hard object. It was also more common on the old aged animal because of the teeth were movable and easy to pull out. On the other hand Easley (1999) mentioned that the deciduous incisors of the horse were often injured or avulsed in conjunction with fracture of the mandible or

premaxilla. The fractured tooth should remove to allow permanent teeth room for normal eruption.

Step- formed teeth was due to absence of the opposing teeth or due to unequal wear of opposing teeth in the dental arcade and it was treated by regular (semiannual) interval rasping. In the other hand Baker (1992) said that the variation in the height of individual premolars and molars lead to step mouth, this might be due to unequal wear of opposing teeth in the dental arcade or surgical removal of teeth.

Concerning sharp enamel points it was more common affection of the teeth. It was due to variation in the width between the maxilla and mandible and due to excessive wearing of the teeth during mastication. It caused laceration of the buccal mucosa and tongue. It treated by interval regular rasping, of the sharp teeth while Baker (1992) recorded that sharp enamel points result from normal girding action of the dental arcades to formation of complex transverse ridges arced the occlusal surface of teeth. The wave teeth make abnormal mastication behavior.

In our study unilateral and bilateral epistaxis were recorded in horses and donkeys. Usually trauma was the main cause. The blood that came from the nostril was bright red in colour at the first day and in the next day become brown in colour. Local application of cotton soaked in epinephrine amp inside the nose and putting ice bag over the head proved the suitable treatment for unilateral epistaxis. In addition, the same procedure was applied in case of bilateral epistaxis in horse preceded by tracheotomy.

In the present study osteodystrophia fibrosa was recorded in horses. The affected animal suffered from marked dyspnea, depression and emaciation. Trachostomy was indicated to improve the respiratory function,

the same results were found by El-guindi and Kassem (1987) in foal but the affection accompanied by slightly mucoid nasal discharge comes from the nostrils.

Summary

A survey on the prevalent head affections in equine species was performed. In this trend, three Governorates were incorporated (Alexandria, Cairo and Edfu). Throughout this investigation, a total number of 12180 animals (7186 horses, 4091 donkeys, 903 mules) of both sexes were examined.

It was concluded that about 924 animal (456 horse, 316 donkey and 152 mule) per 7.58% from the total animal that was examined suffering from different affections in the head region.

1- Eye affection: recorded in 549 animals (252 horses, 210 donkeys and 87 mules) it includes.

- a) Wounds of the eyelids (old and recent) recorded in 67 cases (32 horse, 31 donkey and 4 mules) and this represent (7.25%) from total affection.
- b) Tumors of the eyelid recorded in two cases these representing (0.21%) and were remove surgically.
- c) Conjunctivitis recorded in 98 cases (52 horses, 29 donkeys and 17 mules) representing (10.60%).
- d) Fracture of the supraorbital process, which recorded in one donkey (0.10%)
- e) Corneal wound and it including abrasions and lacerations and penetrating wounds recorded in 60 cases (46 horse and 14 donkey) represent (6.5%).
- f) Keratitis was the most common corneal affections. Recorded in 98 cases (55 horse, 23 donkey and 20 mule) represent 10.60%.
- g) Corneal abscess recorded in 45 cases (25 horse, 5 donkey and 15 mule) represent 4.87%. Not respond to any medical treatment.

- h) *Keratoconjunctivitis* was more common; it was recorded in 78 cases (32 horses, 25 donkeys and 21 mules) represent 8.44%. Complete recovery was occurred in all animals except one case which undergo enucleation because the perforation of the cornea was occurred.
- i) Squamous cell carcinoma, it was recorded in one horse only (0.10%) undergo enucleation of the eyeball.
- j) Cataract, it recorded in 18 cases (8 horses and 10 mules) represent 1.94%.
- k) Histoplasmosis recorded in 80 donkeys in Edfu (8.65%)
- l) Dacrocystitis recorded in one horse only (0.10%).

2- Different oral affections:

- a) Lip wound it recorded in 63 cases (38 horses, 14 donkeys and 11 mules) represent 6.81% and the treatment done by daily dressing on the wound or by surgical interference by suturing.
- b) Lip abscess recorded in one horse represent 0.10%
- c) Tumor, it was recorded in 30 cases (22 horses, 3 donkeys and 5 mules) represent 3.24%. and it was treated by electrocautery or by surgical interference.
- d) Facial paralysis it recorded in 12 horses (1.29%).
- e) Cheek wounds recorded in 53 cases (27 horses, 16 donkeys and 9 mules) represents 5.73 %.
- f) Cheek abscess it was recorded in six cases (4 horses and 2 donkeys) represent 0.64%.
- g) Tongue wound recorded in 33 cases (20 horses, 8 donkeys and 5 mules) represent 3.56 %. Moreover, most of them undergo recovery.

- h) Ulceration of the tongue, it was recorded in six cases (4 horses and 2 donkeys) represent 0.64 %. They recovered by medical treatment.
- i) Tongue abscess recorded in a donkey represent 0.1%
- j) Teeth affections observed in 143 cases (56 horses, 54 donkey and 34 mule) represents 15.44%, they were congenital affection like parrot& pig mouth and acquired affection like fracture of tooth, step formed teeth, tooth abscess and sharp enamel point.
- k) Maxillary and mandible fracture recorded in 11 cases (7 horse and 4 donkey) represent 1.18%. And all of them under surgical treatment.

3- Affection of the nostrils and face.

Epistaxis was recorded in 11 cases (8 horses and 3 donkeys) represent 1.19%.

- a) Wound of the nostril recorded in one horse represent 0.1%.
- b) Osteodystrophia fibrosa recorded in four horses (0.43%)

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ARABIC SUMMARY

الملخص العربي

تعتبر منطقة الرأس من الأماكن الجمالية في الخيول حيث أنها أول ما يستهل النظر إليها وأي إصابة في الوجه من الممكن أن تؤدي إلى تشويه وجه الحيوان وقد اقتصرت هذه الدراسة بعمل حصر للاصابات التي تصيب الفصيلة الخيلية في هذه المنطقة. وكذلك دراسة انسب الطرق في التشخيص و العلاج سواء كان ذلك باستخدام الأدوية أو بأجراء العمليات الجراحية. وفي هذا الصدد تم فحص عدد ١٢١٨٠ حيوانا (٧١٨٦ حصانا، ٤٠٩١ حمار، ٩٠٣ بغل) من كلا الجنسين.

وقد لخصت هذه الدراسة إلى أن ٩٢٤ حيوانا (٤٦٠ حصانا، ٣١٣ حمار، ١٥١ بغل) بمعدل ٧,٥٨ % من إجمالي الحيوانات التي تم فحصها كانوا يعانون من إصابات مختلفة في كل من الرأس.

ومن الاصابات التي تم فحصها وتسجيلها :-

- أ- إصابات العين :** وهي تمثل ٥٤٨ حيوانا (٢٥٤ حصانا ، ٢٠٧ حمار، ٨٧ بغل) وهي تشمل
- ١- جروح العين : ومنها الحديث والقديم تم علاجها جراحيا .وهي تمثل نسبة ٧,٢٥ % من إجمالي الاصابات حيث تم تسجيل ٦٧ حيوانا(٣٢ حصان و ٣١ حمار و ٤ بغل).
 - ٢- أورام الجفن : وقد سجلت في حمارين فقط وقد تم استئصالها وهي تمثل نسبة ٠,٢١ % من إجمالي الاصابات
 - ٣- التهابات الملتحمة : وقد سجلت أعلى نسبة بين الإحصائيات المختلفة ١٠,٦٠ % حيث تم تسجيل ٩٨ حيوانا مصابا(٥٢ حصان و ٢٩ حمار و ١٧ بغل).
 - ٤- الكسور العظمية حول العين كانت قليلة جداً وقد سجلت في حيوان واحد من الحمير وقد تم علاجه .وهي تمثل نسبة ٠,١ % من إجمالي الاصابات.
 - ٥- جروح القرنية : ومنها الخدوش والتهتكات والجروح النافذة وقد سجلت في ٥٩ حيوان (٤٦ حصان و ١٤ حمار) وقد تم علاج معظم هذه الحالات . وهي تمثل نسبة ٦,٥ % من إجمالي الاصابات.
 - ٦- التهاب القرنية : وقد سجلت أعلى نسبة بين الإحصائيات المختلفة حيث تم تسجيل ٩٨ حيوان (٥٥ حصان و ٢٣ حمار و ٢٠ بغل) بنسبة ١٠,٦٠ % .

- ٧- خراجات القرنية: وقد تم تسجيل ٤٥ حيوانا مصابا (٢٥ حصان و ٥ حمار و ١٥ بغل) بنسبة ٤,٨٧ % من اجمالي الاصابات ولم يتم التعامل معها جراحيا
- ٨- التهاب القرنية والملتحمة معا: وقد سجلت في ٧٨ حيوان (٣٢ حصان و ٢٥ حمار و ٢١ بغل) بنسبة ٨,٤٤ %.
- ٩- أورام مقله العين : وقد سجلت في حصان واحد فقط وذلك بنسبة ٠,١ %
- ١٠- المياه البيضاء: وقد سجلت في ١٨ حالة (٨ حصان و ١٠ بغل) وذلك بنسبة ١,٩٤ % من اجمالي الاصابات .
- ١١-الهستوبلازموزا : وقد سجلت في ٨٠ حمار في ادفو وتمثل نسبة ٨,٦٥ % من اجمالي الاصابات .
- ١٢-التهاب القناة الدمعية: وقد سجلت في حصان واحد فقط وهي تمثل نسبة ٠,١٠ % من اجمالي الاصابات.

ب- الاصابات التي تصيب الفم :

- ١-جروح الشفة : وقد سجلت في ٦٣ حيوان (٣٨ حصان و ١٤ حمار و ١١ بغل) وهي تمثل ٦,٨١ % من اجمالي الاصابات وتم علاجها جميعا إما بالغيار اليومي أو التدخل الجراحي بالخياطة
- ٢- خرايج الشفة: وقد سجلت في حصان واحد بنسبة ٠,١ %
- ٣-الأورام : وقد سجلت في ٣٠ حيوانا وهي تمثل نسبة ٣,٢٤ % من اجمالي الاصابات وقد تم علاجها جراحيا أو بواسطة الكي بالكهرباء .
- ٤- ارتخاء الشفة : وقد سجلت في ١٢ حصانا وتمثل ١,٢٩ % من اجمالي الاصابات ولم يتم علاجها حيث أن أصحاب الحيوانات يرفضون التدخل الجراحي ومكتفين بالحالة التي عليها الحيوان.
- ٥- جروح الوجه: وقد سجلت في ٥٣ حالة (٢٧ حصان و ١٦ حمار و ١٠ بغل) بنسبة ٥,٧٣ %
- ٦- خرايج الوجه : سجلت في ٦ حالات (٤ حصان و ٢ حمار) بنسبة ٦٤ %
- ٧- جروح اللسان : وقد سجلت في ٣٣ حالة (٢٠ حصان و ٨ حمار و ٥ بغل) بنسبة ٣,٥٦ % من اجمالي الاصابات وقد تم علاج جميع الحالات المصابات .
- ٨- قرح اللسان : وقد تم تسجيل ٦ حالات (٤ حصان و ٢ حمار) بنسبة ٠,٦٤ % وقد تم علاج جميع الحالات .

٩- خرايج الفم: وقد سجلت في حمار واحد بنسبة ٠,١%

١٠- إصابات الأسنان : تم تسجيل ١٤٣ حالة (٥٦ حصان و ٥٣ حمار و ٣٤ بغل) بنسبة ١٥,٤٤ % وهي أعلى نسبة بين الإصابات المختلفة حيث تجيء في المرتبة الأولى حيث يوجد بعض العيوب الخلقية مثل فم الخنزير وفم البيغاء بالإضافة ألي الإصابات الأخرى ألتى تمثل الكسر وطول السنة وخراج الضروس وبروز الأسنان.
٧-كسور الفك : وقد سجلت في ١١ حيوان (٧ حصان و ٤ حمار) وتمثل نسبة ١,١٨ % من إجمالي الإصابات وقد تم علاجها جميعاً .

ج-الإصابات ألتى تصيب الأنف والوجه :

١- التنزيف من الأنف : وقد سجل في ١١ حالة (٨ حصان و ٣ حمار) بنسبة ١,١٩ % من إجمالي الحالات المصابات .

٢- جروح الأنف : وقد سجلت في ١ حصان وهي تمثل ٠,١% من إجمالي الحالات المصابات .

٣-التورم اليفى العظمى: وقد سجلت في ٤ حصان وهي تمثل نسبة ٠,٤٣ %

هذا وقد تم تسجيل جميع الحالات وعمل عدد ٥ جدول وعدد ٧٤ صوره فوتوغرافية وعدد واحد صورة أشعة وتحليل أورام لتوضيح النتائج و الأعراض الإكلينيكية والتدخلات الجراحية اللازمة.

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الإصابات الجراحية لمنطقة الرأس في الفصيلة الخيلية

رسالة مقدمه من

ط ب/ احمد محمد محمود محمد إسماعيل

بكالوريوس العلوم الطبية البيطرية

جامعه الاسكندريه (١٩٩٢)

لنيل درجه الماجستير في العلوم الطبية البيطرية

(جراحة)

كلية الطب البيطري

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