Henry Ford Hospital Medical Journal

Volume 2 | Number 3 Article 3

9-1954

Glomus Jugularis Tumors: A Report of Four Cases

J. L. Dill

D. S. Bolstad

GLOMUS JUGULARIS TUMORS: A REPORT OF FOUR CASES

J. L. Dill, M.D.* and
D. S. Bolstad, M.D.**

Four patients have been seen and treated because of tumors of the middle ear arising from the glomus jugularis. Two of these tumors were far advanced when first seen; the other two were of comparatively recent origin.

Case I. 524432 I.B. Female, white, aged 23.

11-15-47

At the time of the first visit her chief complaint was of "trouble with the right ear for the past five years." She stated that about five years prior to her initial visit she developed trouble with the right ear which was mainly a "plugged-up" feeling, and was associated with pregnancy. At times she noted a discharge from the right ear which resembled liquid wax. For the previous two years she noted pain around the right mastoid region and generally did not feel well. There had been a cough for three weeks and a loss of 14 lb in weight. Hearing had become poor in the right ear.

General physical examination was negative. The right ear canal was clean. The drum was red and swollen in the posterior quadrant, and there was a heaped-up area on the floor of the canal close to the drum. There was definite mastoid tenderness. X-rays of the mastoids were negative for destruction. The patient was placed on sulfadiazine.

11-19-47

Patient reported she had less discomfort in the ear. On examination it appeared that there was less redness of the ear drum.

1-27-49

She did not return for approximately fourteen months. At that time she complained of inability to swallow which had been present for three days and swelling and thickening of the tongue for one week. The right ear drum was red. The tongue was atrophied on the right side with a deviation to the right on protrusion. There was sagging of the soft palate on the right. There was also tenderness of the right mastoid. On X-ray the mastoid cell outline was not clear. There was haziness and an area of destruction inferior to the canal. The petrous apices were well shown and nothing unusual was noted. The hearing test showed a conductive deafness of the right ear. Spinal fluid was negative.

---

*Surgeon-in-Chief, Division of Otolaryngology.
**Associate Surgeon, Division of Otolaryngology.

2-23-49

A right radical mastoidectomy was done. The cortex was intact; the cell walls were intact, but the bone was soft. As the cells were opened a serous discharge pulsated from the deeper cells. There was a tumor of the middle ear found with a dihisence of the floor. There was profuse bleeding. Pathological diagnosis was glomus jugularis tumor.

3-3-39

X-rays showed a large defect in the region of the right jugular foramen with smooth margins and comparative denseness. It was suggestive of a slowly expanding, non-invasive lesion.

5-21-49

The mastoid was reopened, at which time the mastoid tip, the posterior canal wall, and the floor of the middle ear were removed. The facial nerve was exposed and pushed aside and some tissue was removed. Because of the very profuse bleeding the tumor could not be removed. During the operation the carotid was pinched off, as was the internal jugular, by finger pressure but we were unable to control the bleeding of the tumor.

Pathological report read "Between the bony trabeculae there is fibrous tissue for the most part infiltrated with tumor. Some pressure necrosis of bone. The pattern of the growth of the tumor in the bone indicates an infiltrative capacity. Bone destruction apparently not entirely expansible."

The patient had a marked facial paralysis. There was good faradic response and though there never was complete recovery there was gradual improvement of the paralysis. There was likewise a left sided body paralysis, due to possible thrombosis of the postero-inferior cerebellar artery, from which she made a slow recovery.

8-5-49

X-ray therapy was begun. She received this daily until 10-14-49.

11-12-49

There was still some residual paralysis of the left side of the body.

2-16-52

Patient did not return to the hospital until this date. There was a continuing facial weakness, difficulty in swallowing, regurgitation of food and it was felt that generally her progress was poor.

5-9-52

Ventriculogram was normal.

3-12-54

There was another lapse between visits. When patient returned she had some increase in pain in the right arm and increase in dysphagia. X-rays showed some

increase in the destruction of the mastoid and adjacent bones. A course of X-ray in small fractional doses was begun.

6-1-54

Patient was admitted to the hospital because of "smothering attacks" and shortness of breath. Physical examination and laboratory tests were all within normal limits. Patient was discharged feeling fairly well.

COMMENT:

This woman is our youngest patient, with onset of symptoms at the age of 18 years. She is still living with tumor involvement of the right ear for over twelve years. She has difficulty in swallowing and there is evidence of involvement of the VII, VIII, IX, X and XII cranial nerves.

Case II. 673952 E.K. Female, negro, aged 65.

3-22-52

This patient first consulted us with the chief complaint of "nose bleeds." She was admitted on the medical service at that time because of severe epistaxis. Her past history revealed that since 1926 she had had trouble with her left ear. There was a "buzzing and bubbling" noise at the onset, and she put objects into the ear in order to stop the noise. She developed pain in the left ear and her local physician incised the drum. This was followed by considerable bleeding. The ear continued to drain and "a lump" was noted in the left ear canal. In 1945 she developed a paralysis of the left side of the face.

At the time of her examination on 3-22-52 leucocyte count was 15,800 with 83% polynuclear cells. The left auditory canal was filled with a tumor which was covered with skin. There was a soft fluctuant swelling over the left mastoid, zygoma and parotid areas. A whiteish, purulent material came from the canal behind the tumor mass. X-rays showed the right mastoid to be pneumatized and normal. There were sclerotic changes in the left mastoid and some decrease in the diameter of the left auditory canal.

4-1-52

A radical mastoidectomy was done. The mastoid cortex was intact. It bled profusely. The tumor had invaded the entire mastoid cavity. The posterior canal wall was destroyed and the middle ear and canal were filled with the tumor. There was partial destruction of the anterior canal wall, and invasion of the neck and parotid area by the tumor mass. Protrusion of the tumor was noted in the nasopharynx through the orifice of the eustachian tube.

4-6-52

X-rays of the petrous revealed demineralization and bony defect along the medial portion of the petrous bone on the left with involvement of the floor of the medial and posterior fossa and extension into the mastoid region.

4-7-52

Her postoperative course having been uneventful she was discharged from the hospital. X-ray therapy was advised, but patient refused further treatment of any sort and did not return to the hospital.

COMMENT:

In this case the symptoms of left middle ear involvement were present for twenty-six years. In this time there was invasion of the mastoid, parotid gland, petrous portion of the temporal bone and destruction and apparent involvement of the floor of the medial and posterior cranial fossa.

We have been unable to contact this patient for any additional follow-up.

Case III. 680217 E.K. Female, white, aged 43.

5-28-52

This patient's initial complaint was headache. She was admitted to the hospital on the Neurosurgery service with a tentative diagnosis of brain tumor. She was rather vague about the onset of the headache, and was only able to date it to some six to eleven weeks previously. There was no antecedent history other than an attack of dizziness.

5-31-52

The left ear drum was found to be discolored. There was no perforation noted, but there was a peculiar fullness in the upper and posterior portion. The tongue was atrophied and there was deviation to the left on protrusion. Audiometric examination revealed a marked deafness of the left ear. Neurological examination showed a mild papilledema bilaterally; there was paralysis of the left side of the tongue and mild left facial weakness as well. X-rays revealed extensive lytic lesion of the left petrous. A diagnosis of glomus jugularis tumor was made.

6-2-52

At the time of operation by the neurosurgeons a reddish gelatinous tumor in the left suboccipital region was found which bled profusely. Pathological report confirmed the diagnosis of glomus tumor.

1-9-53

Patient expired after a gradual down-hill course. There was evidence of intracranial extension. Post-mortem was denied.

COMMENT:

The history is short in this case, with symptoms of less than a year and death due to an intracranial extension of the tumor.

Case IV. 24592 P.G. Female, white, aged 55.

11-5-48

When first seen by us in the clinic her principal complaint was of tinnitus. Examination at that time was entirely negative and her hearing was normal.

9-7-49

On her return to the clinic she complained of a "thumping sensation in the left ear." This was more or less synchronous with her heart beat. In addition there was an occasional mild pain and a "plugged up" feeling in the left ear.

Examination revealed the left ear canal to be clean; ear drum was intact. There was redness of the inferior quadrant of the drum, giving the impression of something being present behind it. There was no edema of the eustachian tube or orifice. Tapping of the mastoid produced a hollow sound on the left which was entirely different from that produced on the right. The X-rays were negative. White blood count was 7,650.

5-2-51

She was seen again, complaining that the tinnitus still persisted and that she had noted more fullness of the left ear. The audiometric examination at that time revealed slight diminution in hearing bilaterally. X-rays of mastoid were again negative.

5-19-52

After admission to the hospital a simple mastoidectomy was done. No infection was found to be present; the cell walls were intact. Pathological diagnosis was glomus jugularis tumor.

6-4-52

X-ray therapy was begun. She received this daily until 6-18-52.

8-6-52

The thumping sensation in the left ear was less marked, disappearing at times. There was no essential change in the left ear on examination.

1-14-53

Audiogram revealed the hearing to be unchanged.

10-8-53

The patient stated the tinnitus was mild. There was a slight hissing sound at times in the ear which she found troublesome.

Examination revealed slight redness of the left drum in the inferior quadrant, due to a small reddish mass behind the drum. The hearing remained about the same.

COMMENT:

In this case X-ray therapy was advised rather than surgery in the hope that the tumor could be controlled. It is our expectation that the patient can outlive the tumor, with perhaps no increase in her symptoms which she at present tolerates reasonably well.

CONCLUSION:

In summary, we find all four of these patients were female, the age at the onset of symptoms ranging from 18 to 55 years. In common the symptoms were vague at the onset; there was tinnitus, what was described as a "plugged up" feeling, and mild pain in the ear. Because of the mass behind the ear drum it had the appearance of a mild inflammation.

The glomus jugularis tumors are apparently benign, spread by direct continuity with destruction of bone and involvement of the surrounding structures, including the central nervous system. They are slow-growing, produce a conductive deafness, and by destruction involve the nerves in the surrounding area. This latter in turn may produce the symptoms of a jugular foramen syndrome.

In the early stages of the disease, X-rays fail to show any destruction or involvement of the ear or mastoid. As the tumor progresses there is a distinct haziness of the mastoid cells. Still later destruction in the middle ear and in the adjacent mastoid cells is evident. The growth at times may involve the petrous with evidence of destruction in this area on X-ray.

It would appear that early in the disease surgery is the treatment of choice. If confined to the middle ear the tumor may be entirely removed. Bleeding at the time of surgery is profuse and difficult to control. Occasionally the patient may require a transfusion. It should be noted that profuse bleeding, either on paracentesis of the drum or at the time of operation, should be considered one of the diagnostic features of glomus jugularis tumor. With surgery the facial nerve may be paralyzed.

If the growth is extensive it cannot be removed in its entirety by surgery. In this event X-ray therapy is perhaps the best choice of treatment. Such therapy may shrink the tumor and may lesson the bleeding. In two of our cases it apparently prevented rapid extension of the growth.

Prognosis in all cases may be guarded. It is extremely doubtful that the entire growth can be removed. Life may be prolonged, however, by either surgery or roentgen therapy.