Chondroblastoma of the Temporal Bone: A Case Series, Review, and Suggested Management Strategy

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ABSTRACT

Chondroblastoma of the temporal bone is a rare condition. Chondroblastomas account for less than 1% of primary bone tumors, and those involving the temporal bone represent a tiny fraction of these tumors with most arising from the knee, rib, and pelvis. We present a case series of two patients who presented with chondroblastomas of the temporal bone over a period of 8 years to the St. Vincent's Hospital in Melbourne, Victoria, Australia. In particular, we outline the presenting complaint, diagnostic imaging undertaken, and the importance of preoperative histopathology in coming to the diagnosis and subsequent resection undertaken. A review of the current literature is presented with a suggested management strategy for these tumors.

KEYWORDS: Chondroblastoma, temporal bone, multidisciplinary, team, management

Chondroblastoma of the temporal bone is a rare condition.[1] Chondroblastomas account for less than 1% of primary bone tumors,[2] and those involving the temporal bone represent a tiny fraction of these tumors with most arising from the knee, rib, and pelvis.[2]

We present a case series of two patients who presented with chondroblastomas of the temporal bone over a period of 8 years to the St. Vincent's Hospital in Melbourne. We will also review the current literature and a suggested management strategy for these tumors.

CASE REPORTS

Case 1

A 27-year-old woman with no previous medical history presented with several weeks' history of tinnitus and decreased hearing in the right ear. Physical examination revealed an external auditory canal mass as well as a slight swelling over the right squamous temporal bone region. There were no cranial nerve abnormalities. No formal audiovestibular testing was performed preoperatively.

The computed tomography (CT) and magnetic resonance imaging (MRI) scans demonstrated an aggressive looking destructive mass involving the right petrous temporal bone and temporomandibular joint, centered at the junction between the squamous and petrous temporal bones (Fig. 1A–C). A positron emission tomography (PET) scan revealed the lesion to be intensely metabolically active, in keeping with a malignancy. There was no evidence of metastatic disease on the CT brain/chest/abdomen/pelvis. Based on the biopsy result of a giant cell-rich lesion with pericellular calcification in keeping with a chondroblastoma, the patient underwent a partial tem-

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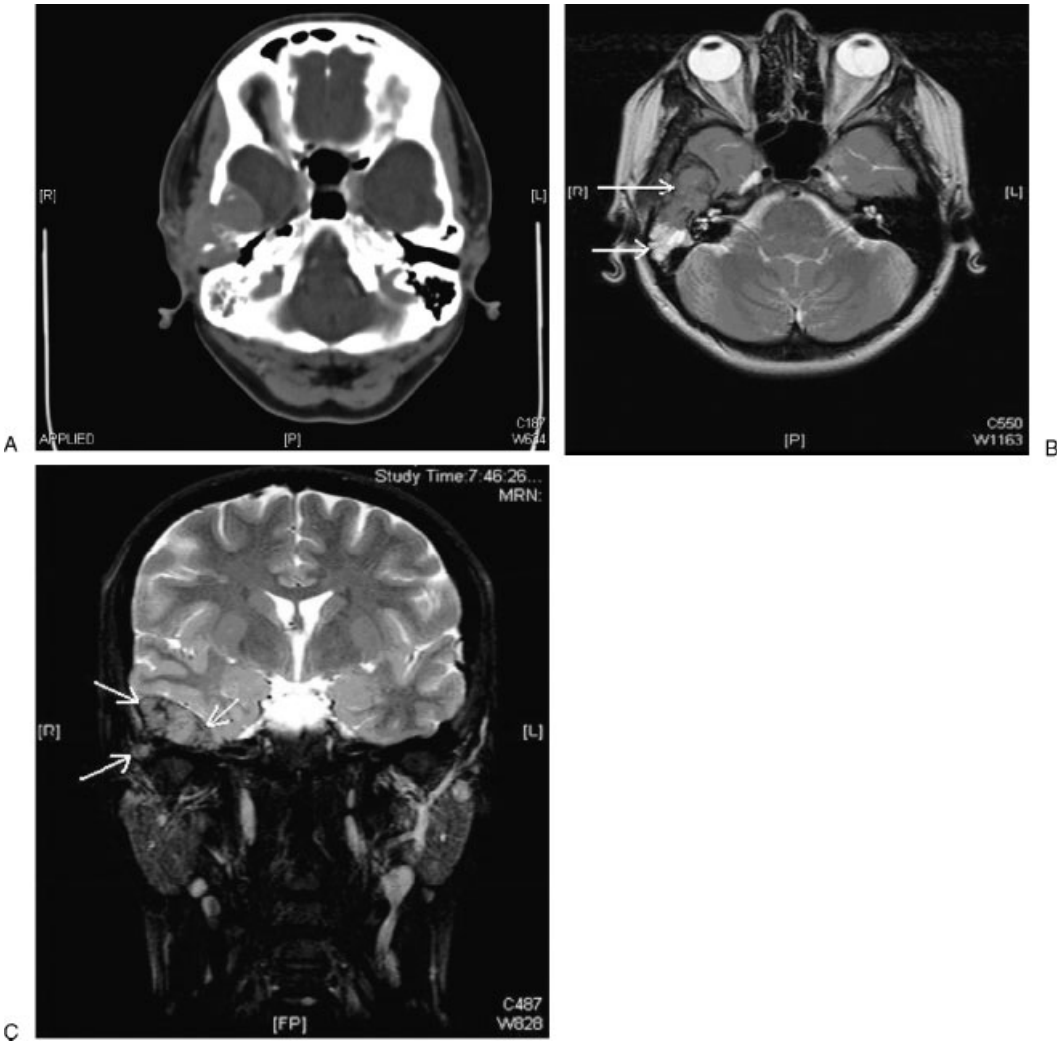

Figure 1 (A) Case 1: Axial CT bone windows. (B) Case 1: Axial T2 MRI. (C) Case 1: T2 Coronal MRI.

poral bone resection, parotidectomy, and mastoid meatoplasty with neurosurgical resection of the middle cranial fossa component. The tumor appeared to be entirely extradural. Of note, the facial nerve was dehiscent in the anterior epitympanum but not involved with tumor. The tumor was dissected free from this area. The patient made a good postoperative recovery.

A complete right facial nerve palsy (House-Brackmann equivalent 6 [HBe6]) evolved while an inpatient (immediately postoperatively the patient had an HBe2). This complete palsy was present on discharge, but subsequently completely resolved 3 months postoperatively. Definitive histopathology on the resected specimen confirmed a chondroblastoma. Review at 18 months showed no evidence of tumor recurrence and normal facial nerve function.

Case 2

A 59-year-old woman with a history of type two diabetes mellitus complained of a right pre-auricular swelling that had slowly grown in size over the previous few months. This was associated with localized swelling in the right external auditory meatus, a right-sided facial weakness (HBe2), and mild hearing loss. No formal audiovestibular testing was performed preoperatively; however, free field whisper testing and tuning forks showed only a very small amount of conductive deafness.

The CT and MRI scans showed a lobulated mass in the subcutaneous tissues immediately lateral to the temporomandibular joint, involving the joint and partially encasing the head of the mandible. There was further infiltration into the right external ear canal with a larger soft tissue component in the dorsal aspect of the right zygomatic region (Fig. 2A, B).

The bone scan highlighted scintigraphic uptake within the anteroinferior aspect of the base of the right petrous temporal bone (Fig. 3). A biopsy was consistent with a giant cell tumor of the right temporal bone.

The patient underwent a right infratemporal fossa resection of tumor with partial parotidectomy and temporalis muscle rotation flap and reconstruction of the

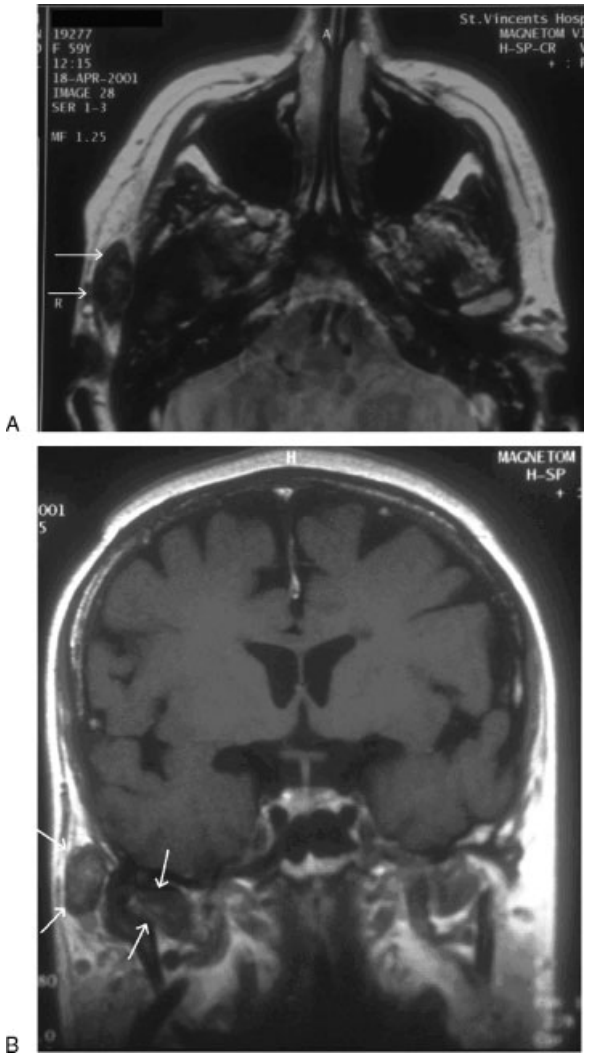

Figure 2 (A) Case 2: MRI Axial. (B) Case 2: MRI Coronal.

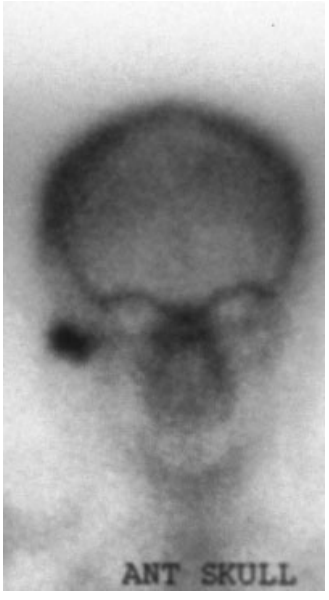

Figure 3 Case 2: Bone scan.

right ear canal. The superior division of the facial nerve was found to be associated with the tumor. These branches were dissected free of the tumor and reflected anteriorly. The facial nerve trunk was intact and the inferior division was not involved.

Postoperatively the patient made a good recovery and there was no facial nerve palsy present on discharge. The tumor diagnosis was revised to chondroblastoma on definitive histopathology. Review at 7 years showed no evidence of tumor recurrence.

DISCUSSION

Chondroblastoma was first described in 1931 by Codman who originally described an "epiphyseal chondromatous giant cell tumor of the proximal humerus," with the diagnosis corrected to chondroblastoma of bone by Jaffe and Lichtenstein in 1942.[3]

The following terms were used in the keywords search tool to do an Ovid Medline literature search with the date parameter 1950 to present:

- Chondroblastoma + skull base
- Chondroblastoma + temporal bone
- Chondroblastoma + diagnosis + temporal bone
- Chondroblastoma + temporal bone + skull base

Only English language journal articles or those translated into English were reviewed. These search strings plus review of the reference lists in the returned articles yielded 41 original articles reporting on a total of 79 cases of chondroblastoma of the temporal bone. Including this current case series, there are total of 81 reported cases worldwide of chondroblastoma of the temporal bone in the English Literature. Table 1 details a summary of those cases presented in the literature. A review of these 81 cases was performed, and an analysis was performed when complete datasets were available.

Of the 73 patients with complete datasets there were 33 females and 40 males affected, giving a slight male predilection with a 1:1.2 female to male ratio.

Average age at presentation for females was 41 years (range, 3 to 85 years, standard deviation of 15.4 years; $n = 33$) with that for males 41 years (range, 8 to 70 years, standard deviation 15 years; $n = 40$). There was no right to left predilection (right = 30/left = 36/unknown = 15)

There was considerable variation in the presenting symptoms of chondroblastoma of the temporal bone. Table 2 lists the range of presenting symptoms of chondroblastoma of the temporal bone. The most common presenting symptoms are hearing loss (49% of reported cases), cranial nerve involvement (43.2%), facial swelling (22.2%), and otalgia (19.8%). A subgroup analysis was performed, but did not yield any useful

Table 1 Summary of Cases of Chondroblastomas of the Temporal Bone Published in the Literature: 1950 to Present

Article	Date Published	Age	Sex	Presenting Symptom	Side	Preop biopsy	Preop CT/MR	Operation	Radiotherapy	Chemotherapy	Follow-up (months)	Recurrence
Anim et al[12]	1986	45	M	Facial swelling, otorrhea, hearing loss	Left	Yes	CT	Radical resection	No	No	12	No
Ben Salem et al[13]	2002	31	F	Otalgia, hearing loss, TMJ pain	Right		CT, MR	Zygomatic extended middle fossa approach with resection of the involved squamous temporal bone and zygomatic arch	No	No	12	No
Bertoni et al[14]	1987	53	M		?		??	?	?	No	?	?
56	M		Right		??	Curettage	?	No	108	No		
61	F		?		??	Curettage	?	No	?	?		
?	?		?		??	Excision	No	No	24	No		
35	M		Left	Yes	??	Resection	No	No	12	No		
46	M	Blocked ear	Left		??	?	?	No	?	?		
63	M	Blocked ear	?	Yes	??	Curettage	No	No	28	No		
40	M	Trismus	?		??	Curettage	Yes	No	48	No		
39	F	TMJ pain	Left		??	Excision	No	No	17	No		
3	F	Otorrhea	?		??	Curettage	No	No	48	No		
70	F	Otalgia	Left		??	Craniotomy and mastoidectomy	?	No	?	?		
39	M		Right	Yes	??	Excision	No	No	6	Yes		
52	M	Hearing loss	?		??	Curettage	No	No	?	?		
33	M	Hearing loss	?	Yes	??	Curettage	No	No	48	No		
66	M	Hearing loss	Right		??	Curettage	No	No	72	No		
45	M	Facial swelling, Otorrhea, hearing loss	Left		??	Excision	No	No	12	No		
36	F	Tinnitus, hearing loss	Left	Yes	??	Curettage	No	No	48	No		
Bian et al[15]	2005	38	M	Facial swelling, hearing loss	Left		CT, MR	Zygomatic extended middle fossa approach with resection of the involved squamous temporal bone and zygomatic arch	No	No	12	No
Blaauw et al[16]	1988	16	M	Facial swelling	Right	Yes	CT	Intracapsular removal	Yes	No	6	Yes
Cabrera et al[9]	2006	31	F	Facial swelling, otalgia	Left	Yes	CT, MR	Excision	No	No	12	No
Cares et al[17]	1971	30	F	Facial swelling, blocked ear	Left			Curettage	No	No	24	No

(*Continued*)

Article	Date Published	Age	Sex	Presenting Symptom	Side	Preop biopsy	Preop CT/MR	Operation	Radiotherapy	Chemotherapy	Follow-up (months)	Recurrence
Dahlin and Ivins[18]	1972	?	?		?		??	Subtotal resection	Yes	No	7	No
		?	?		?		??	Subtotal resection	Yes	No	7	No
Denko et al[19]	1955	53	M	Facial swelling	Right			Curettage	No	No	?	?
Dran et al[5]	2007	12	F	Hearing loss	Left		CT, MR	Initially subtemporal and subdural approach with intracapsular removal. Second procedure—translabyrinthine combined with subtemporal way	Yes	No	1.5	Yes
Fares et al[20]	1997	?	?		?		??	Subtotal resection	?	?	?	?
Feely and Keohane[21]	1984	42	F	Otalgia	Left		CT	Craniotomy with en bloc resection	No	No	36	No
Flowers et al[4]	1995	8	M	Facial swelling	Right	Yes	CT, MR	En bloc resection	No	No	?	?
Gaudet et al[22]	2004	28	F	Otalgia, hearing loss, blocked ear, TMJ pain	Right	Yes	CT, MR	En bloc resection	No	No	48	No
Harner et al[11]	1979	56	M	Hearing loss, blocked ear	Left	Yes		Mastoidectomy	Yes	No	35	No
		57	M	Tinnitus, hearing loss	Left			Mastoidectomy	No	No	?	?
		39	M	Hearing loss	Right	Yes		Mastoidectomy	Yes	No	94	No
		59	M	Otalgia, otorrhea, hearing loss	Left	Yes	CT	En bloc resection	Yes	No	?	No
Hirth et al[23]	1972	?	?		?		??	?	?	?	?	?
Hong et al[24]	1999	41	F	TMJ pain	Right		CT, MR	Curettage	Yes	Yes	27	No
		58	F	TMJ pain	Right		CT, MR	Excision	No	No	?	?
		57	F		Left		CT, MR	Curettage	Yes	No	27	Yes
		60	M	Headache, tinnitus, hearing loss	Left		CT, MR	Excision	Yes	No	37	No
		52	F	Tinnitus, hearing loss, blocked ear, TMJ pain	Left		CT, MR	Excision	No	No	29	No
Horn et al[25]	1990	39	F	Tinnitus, hearing loss	Left	Yes	CT, MR	Craniotomy and mastoidectomy	No	No	12	No
		34	M	Hearing loss	Left	Yes	CT, MR	Craniotomy and mastoidectomy	No	No	12	No
Ishikawa et al[26]	2002	24	M	Facial swelling, trismus, TMJ pain	Right		CT, MR	Craniotomy with attempted en bloc resection	No	No	24	Yes
Kobayashi et al[27]	2001	60	F	Facial swelling, tinnitus, hearing loss	Left		CT, MR	Curettage	No	No	18	No

(*Continued*)

Article	Date Published	Age	Sex	Presenting Symptom	Side	Preop biopsy	Preop CT/MR	Operation	Radiotherapy	Chemotherapy	Follow-up (months)	Recurrence
Koerbel et al[28]	2007	27	F	Headache, hearing loss	Right		??	?	?	No	?	?
Kurokawa et al[7]	2005	49	M		Right		CT, MR	Excision via a zygomatic approach	No	No	84	No
		27	M	Tinnitus, hearing loss, TMJ pain	Right	Yes	??	Excision via a zygomatic approach	No	No	156	No
		29	M	Hearing loss	Right		??	Excision via a zygomatic approach	No	No	132	No
		32	F	Tinnitus, hearing loss	Right	Yes	CT, MR	Excision via a zygomatic approach	No	No	72	No
Kutz et al[1]	2007	39	F	Headache, otalgia	Left	Yes	CT, MR	Preauricular infratemporal approach with all involved tumor removed resulting in gross resection	No	No	48	No
		85	F	Hearing loss	Left		CT, MR	Initially underwent a mastoidectomy for presumed cholesterol granuloma. Subsequently underwent a transmastoid-subtemporal approach with R/O zygoma and supra-auricular temporal bone	No	No	36	No
		39	F	Hearing loss	Right	Yes	CT, MR	Infratemporal craniotomy and condylectomy with R/O condyle, labyrinth and cochlear. Tumor was dissected from the facial nerve, internal auditory canal fundus and dehiscent petrous carotid artery	No	No	36	No
		70	M	Tinnitus, hearing loss	Right	Yes	CT	Middle cranial fossa approach	No	No	216	No
		62	F	Otalgia, hearing loss, blocked ear	Left		CT, MR	Craniotomy with en bloc resection	No	No	6	No
Leong et al[29]	1994	23	M	Blocked ear	Left	Yes	CT	Cortical Mastoidectomy	No	No	11	No
		31	M	Otalgia, Tinnitus, otorrhea, hearing loss	Left	Yes	CT, MR	Subtotal petrosectomy/en bloc resection	Yes	No	8	No
Mizumatsu et al[30]	2008	52	F	Otalgia	Right		CT, MR	Previous surgical resection	Yes	No	48	No

(*Continued*)

Article	Date Published	Age	Sex	Presenting Symptom	Side	Preop biopsy	Preop CT/MR	Operation	Radiotherapy	Chemotherapy	Follow-up (months)	Recurrence
Moon et al[31]	2008	22	F	Facial swelling, blocked ear	Left		CT, MR	Middle cranial fossa approach	No	No	34	No
		48	F	Facial swelling, trismus, hearing loss, TMJ pain	Right		CT, MR	Mastoidectomy, parotidectomy and ITF approach type C	No	No	78	No
		33	M	Otalgia, otorrhea, hearing loss	Right		CT, MR	Lateral temporal bone resection	No	No	70	No
		33	M	Hearing loss, blocked ear	Right		CT, MR	Mastoidectomy	No	No	58	No
Moorthy et al[32]	2002	31	M	Facial swelling	Left		CT,	En bloc resection	Yes	No	?	?
Muntane et al[33]	1993	58	F	Headache, hearing loss	Right		CT, MR	En bloc resection	No	No	?	?
Narita et al[34]	1992	34	F	Hearing loss	Left		CT, MR	Subtotal resection	No	No	?	?
Rodríguez Paramás et al[35]	2006	31	M	Otalgia	Left	Yes	CT	Craniofacial approach with complete removal	No	No	?	?
Piepgras et al[36]	1972	26	M	Headache	Right			En bloc resection	No	No	12	No
Politi et al[37]	1991	53	M	Facial swelling	Left	Yes	CT	Local excision and curettage	No	No	36	No
Pontius et al[38]	2003	38	M	Facial swelling, otalgia, otorrhea, hearing loss	Left	Yes	CT	Craniotomy and mastoidectomy	No	No	12	No
Selesnick et al[6]	1999	30	F	Otalgia, trismus, TMJ pain	Right		CT, MR	Temporal craniectomy with resection of the condyle of the mandible	No	No	36	No
		38	M	Tinnitus, blocked ear	Right		CT, MR	Subtemporal craniectomy and dissection of the middle fossa floor	No	No	36	No
Shimizu et al[39]	1997	30	M	Hearing loss	Left		CT, MR	Subtotal resection	No	No	?	?
Spjut et al[40]	1971	?	?	?	?		??	?	?	?	?	?
		?	?	?	?		??	?	?	?	?	?
Tanohata et al[41]	1986	55	F	Headache, otalgia, tinnitus, hearing loss	Left		CT	En bloc resection	No	No	?	No
Vandenberg and Coley[42]	1950	39	M	Hearing loss,	Left	Yes		No	Yes	No	102	No
Varvares et al[43]	1992	33	M	Headache, facial swelling, otalgia, hearing loss, TMJ pain	Right		CT, MR	En bloc resection	No	No	24	No
Velizarov et al[44]	1971	?	?		?		??	?	?	?	?	?
Watanabe et al[45]	1999	43	F	Hearing loss, blocked ear	Left			Mastoidectomy	No	No	48	No

(Continued)

Article	Date Published	Age	Sex	Presenting Symptom	Side	Preop biopsy	Preop CT/MR	Operation	Radiotherapy	Chemotherapy	Follow-up (months)	Recurrence
Reid et al (current article)	2010	59	F	Facial swelling	Right	Yes	CT, MR	Craniotomy mastoidectomy and parotidectomy	No	No	83	No
		27	F	Facial swelling, tinnitus, hearing loss	Right	Yes	CT, MR	Craniotomy and mastoidectomy	No	No	18	No

CT, computed tomography; F, female; ITF, infratemporal fossa; M, male; MR, magnetic resonance; TMJ temporomandibular joint.

guide regarding a constellation of symptoms typical of this pathology.

The surgical resection of these tumors again showed great heterogeneity in surgical approach. Earlier reports advocated "curettage" for the removal of these tumors, whereas subsequent contemporary articles took a more aggressive approach. Such approaches included "wide local excision," "mastoidectomy with complete/en-bloc resection," "craniotomy with en-bloc resection," etc.

Fifteen patients received postoperative radiotherapy, who had had a variety of surgical approaches, with no consistent approach noted. Table 3 lists for those patients who received postoperative radiotherapy the surgical approach undertaken for resection of the chondroblastoma and the number of patients who were treated such. Only one patient received chemoradiotherapy who had undergone "curettage" as the primary procedure.

Average overall follow-up was 52 months with the average time to recurrence being 12.9 months. (Note: This was based on 5 of the 61 cases [8.2%] with follow-up data.) Table 4 details the cases of recurrence of chondroblastoma. All had undergone subtotal resection of their tumors and three of five had had postoperative radiotherapy.

Radiographic features of chondroblastoma in long bones are characterized by well-defined osteolytic lesions involving the epiphysis or secondary calcification centers.[4] The diagnosis of chondroblastoma of the temporal bone is aided by imaging using the complementary modalities of CT and MRI. Plain skull X-ray is not helpful in the work-up. (Note: However, the typical findings are of a destructive lytic lesion of the temporal bone.[3]) CT imaging typically shows an expansile intraosseous soft tissue mass with internal calcification[4] and occasional enhancement with intravenous contrast.[5] Often there is a lytic nature to its growth.[6] Further, CT imaging aids in the surgical planning for definitive resection of the tumor as well as defines the underlying bony anatomy. Lastly, it alerts the surgeon to possible intracranial involvement necessitating neurosurgical opinion/involvement in any potential surgical removal.

MRI typically shows a hypo- to intermediate signal on T-1 imaging and high signal on T-2 depending on the chronicity of potential hemorrhages into the mass.[4] The appearance is that of a heterogeneous mass on T-2 likely due to highly vascular fibrous tissue and intense cellularity.[5] Postgadolinium enhancement on T-2 imaging there is heterogeneity with components of marked hyperintensity.[7] Lastly, MRI better delineates than CT the extent of intracranial/other soft tissue involvement, importantly that of dura and brain.

The three key diagnostic histopathological findings are the presence of chondroblasts, osteoclastic-like giant cells, and chondromyxoid stroma surrounding neoplastic cells.[8] Fine needle aspiration (FNA) smears are moderately to markedly cellular and composed of

Table 2 Presenting Symptoms of Chondroblastoma of the Temporal Bone

Symptom	Percentage of Patients
Hearing loss	49.4
Cranial nerve involvement	43.2
Facial swelling	22.2
Otalgia	19.8
Tinnitus	16.0
Temporomandibular joint pain	13.6
Blocked ear/aural fullness	14.8
Pain	12.3
Headache	8.6
Otorrhea	8.6
Trismus	4.9

Table 3 Patients Treated with Postoperative Radiotherapy by Surgical Approach

Surgical Approach	Number of Patients
Curettage[29,46]	3
En bloc resection[33]	2
Excision[46]	1
Initially subtemporal and subdural approach with intracapsular removal	1
Second procedure—translabyrinthine combined with subtemporal way[14]	
Intracapsular removal[12]	1
Mastoidectomy[33]	2
No surgery[39]	1
Previous surgical resection[16]	1
Subtotal petrosectomy/en bloc resection[25]	1
Subtotal resection[41]	2

osteoclast-type giant cells and mononucleated round to polygonal cells occurring individually or in loose aggregates.[9]

Microscopically chondroblastomas are cellular tumors with sheets of mononuclear polyhedral cells admixed with giant cells.[7] A distinctive microscopic finding is the presence of zones of lacy calcification; "chicken wire" calcification. These tumors express s-100 and vimentin and this s-100 expression differentiates it from a giant cell tumor.[7] Fig. 4A–F with associated captions further illustrates the histopathological findings. (Fig. 4A–C is from Case 1 and Fig. 4D–F is from Case 2.)

SUGGESTED APPROACH

Due to the rarity of this tumor there was initially some doubt surrounding the definitive diagnosis. Preoperative imaging with both CT and MRI of the brain and petrous temporal bones with an open biopsy allowed a definitive or a reasonable differential diagnosis before surgery. Multidisciplinary expertise (particularly, confident histopathology input) via multidisciplinary clinics was and is vital in coming to definitive/reasonable diagnoses.

Of the 81 cases reported in the literature, 46 patients underwent a CT of the temporal bone and 35 underwent an MRI; all those undergoing MRI also underwent CT. (Note: 27 of the 81 cases had no mention of either preoperative imaging modality.) All cases after 1999, (31 in total) underwent a CT scan as part of their work-up. The same does not hold true for MRI, with reports up to 2007 not imaging their patients with this modality. It is our opinion that the contemporary work-up should include both CT and MRI of the primary site for reasons previously stated.

In the current review, 7 cases underwent FNA and 19 cases underwent open biopsy before definitive surgery and this allowed either a definitive or a reasonably certain diagnosis to be made before surgery. In our current series, the diagnosis of this relative low grade tumor preoperatively (using an open biopsy technique which we recommend) allowed the planning and execution of a more conservative surgical approach than would have been required for a malignant tumor, and thus less morbidity for the patient.

A work-up for metastatic disease, we believe, should be undertaken preoperatively. There is often no mention let alone a standard approach advocated regarding this part of the patient work-up in the current

Table 4 Details of those Cases of Chondroblastoma in the Literature That Had Recurred

Initial Surgery	Radiotherapy	Time to Recurrence	Follow-Up Treatment
Craniotomy with attempted en bloc resection[19]	No	24	Further surgery—3 y follow-up post second surgery—no recurrence
Intracapsular removal[12]	Yes	6	Mx with curettage and RTx Follow-up 1 y postrecurrence—no abnormality detected
Excision[46]	No	6	Persistence
Curettage[46]	Yes	27	No
Initially subtemporal and subdural approach with intracapsular removal Second procedure—translabyrinthine combined with subtemporal way[14]	Yes	1.5	Yes—at 1.5 mo; second procedure attended + RTx – disease-free 36 mo later

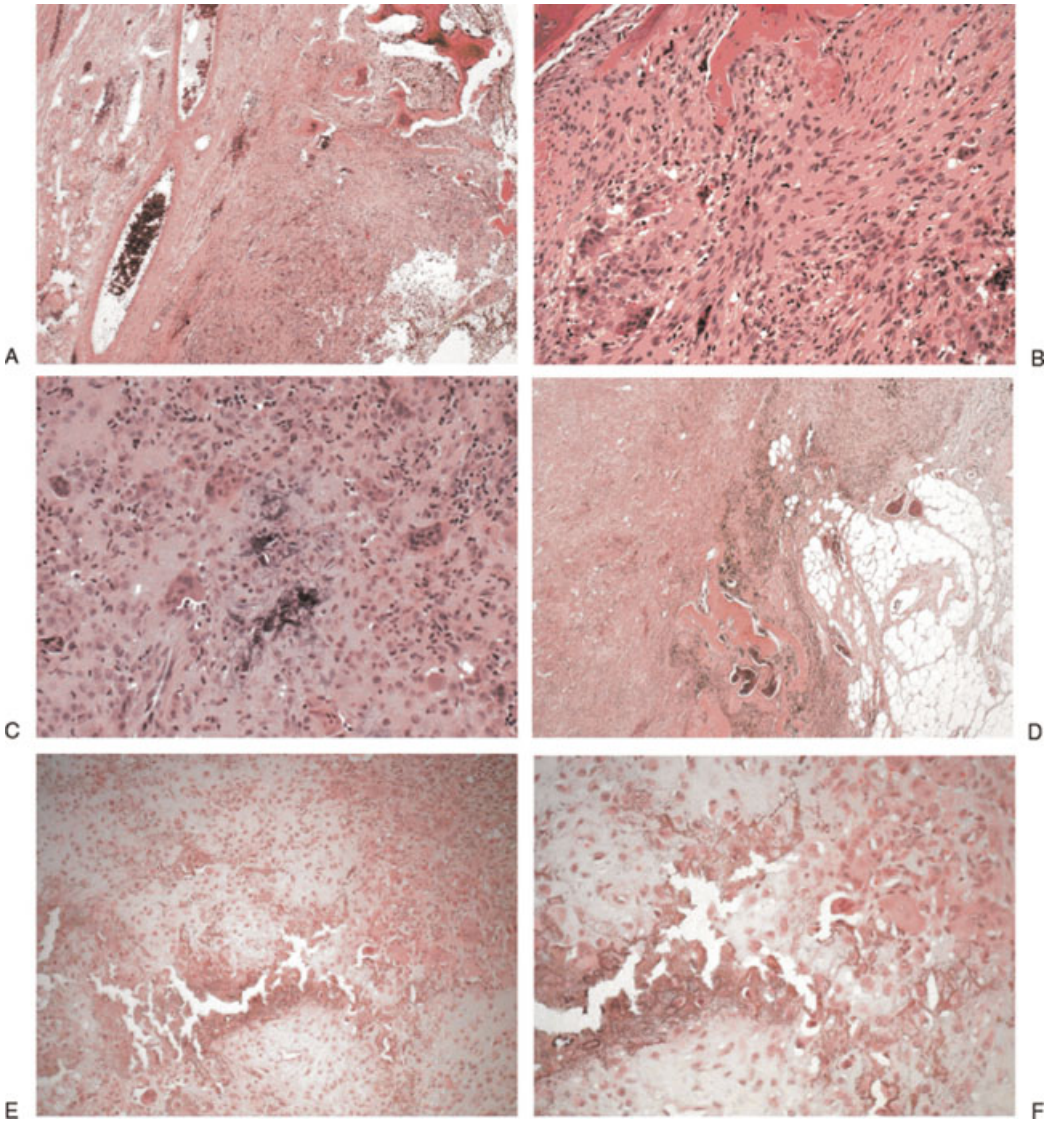

Figure 4 (A) Case 1: A low power H&E view demonstrating interface of tumor (bottom right) with soft tissue (left) and bone destruction (top right). (B) Case 1: A medium power H&E view in which there is a cellular tumor composed of plump to spindled cells with admixed osteoclast-like multinucleated giant cells (bottom left). Entrapped trabecular bone is present (top). (C) Case 1: Focally, areas of ''chicken-wire'' pericellular calcification is a characteristic feature of chondroblastoma. (D) Case 2: In this low power H&E view there is soft tissue (top right) and bony (mid bottom) infiltration by tumor (left). Hemosiderin pigment is prominent. (E) Case 2: As well as cellular areas with many osteoclast-like giant cells (top right) as seen in the first case, there were also prominent light staining chondroid lobules. (F) Case 2: Higher magnification of the same area in 4E reveals the ''pavimented'' array of plump chondroblasts with surrounding pericellular calcification.

literature. Given that pelvic chondroblastoma tumors are known to metastatic to both lung and abdomen,[10] (sometimes nondefinitive nature of the preoperative diagnosis) imaging should include, in our opinion, CT chest, abdomen, and pelvis. (Note: There are no cases of metastatic disease reported to date.)

Complete but conservative multispecialty surgical excision is the preferred therapeutic option and given that there have been no reported cases of metastatic disease, no adjuvant therapy is warranted.

In this review, heterogeneity of surgical approaches and resections was identified. As mentioned previously, given the low grade nature of this tumor we would advocate a complete but conservative multispecialty surgical resection. In our two cases, we employed either a partial temporal bone resection or an infratemporal fossa resection of tumor with both undergoing partial parotidectomy and facial nerve identification and preservation as part of the approach/resection. Other approaches have been advocated and if they too achieve complete resection of the tumor with a minimum of morbidity then they too can be pursued.

The option of radiotherapy has been described in the literature; however, this was reserved for recurrent

tumors.[11] In this current review, the role of radiotherapy is not able to be clearly defined. There is no role for chemotherapy.

Recurrence of these tumors is a possibility, particularly with subtotal resection therefore, long-term follow-up is required. In our series (18 and 78 months postoperative, respectively) no recurrence has occurred.

Lastly, baseline formal audiovestibular function testing should be performed preoperatively in all cases, based on presenting complaint.

CONCLUSION

Chondroblastoma of the temporal bone is an exceedingly rare tumor with diagnosis based on detailed multimodality imaging techniques, biopsy, and multidisciplinary clinic case review. The tumor is best managed with complete surgical excision. The use of radiotherapy is likely best reserved for recurrent/persistent tumor and long-term follow-up for recurrence is required.

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