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

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...
temporal bone resection, parotidectomy, and mastoid meato-plasty 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
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
| Article              | Date Published | Age | Sex | Presenting Symptom            | Side | Preop biopsy | Preop CT/MR | Operation                                                                 | Radiotherapy | Chemotherapy | Follow-up (months) | Recurrence |
|---------------------|----------------|-----|-----|-------------------------------|------|--------------|-------------|---------------------------------------------------------------------------|--------------|--------------|-------------------|------------|
| Anim et al\(^1\)   | 1986           | 45  | M   | Facial swelling, otorrhea, hearing loss | Left | Yes          | CT          | Radical resection                                                        | No           | No           | 12                | No         |
| Ben Salem et al\(^2\) | 2002          | 31  | F   | Otolgia, 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\(^3\) | 1987           | 53  | M   | ?                             | ?    | ?            | ?           | ?                                                                         | ?            | ?            | ?                 | ?          |
| 56                  | M              | Right | ? | ? | ?? | Curettage | ? | No | 108 | No |
| 61                  | F              | ? | ? | ? | ?? | Curettage | ? | 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              | Otolgia | Left | ? | ?? | Curettage | No | No | ? | ? |
| 36                  | F              | Trismus, hearing loss | Left | Yes | ?? | Curettage | No | No | 48 | No |
| Bian et al\(^4\)   | 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         |
| Blauuw et al\(^5\)  | 1988           | 16  | M   | Facial swelling | Right | Yes | CT | Intracapsular removal | Yes | No | 6 | Yes |
| Cabrera et al\(^6\) | 2006           | 31  | F   | Facial swelling, otorrhea | Left | Yes | CT, MR | Excision | No | No | 12 | No |
| Cares et al\(^7\)  | 1971           | 30  | F   | Facial swelling, blocked ear | Left |               | Curettage | No | No | 24 | No |
| Article                          | Date Published | Age | Sex | Presenting Symptom          | Side | Preop biopsy | Preop CT/MR | Operation                                      | Radiotherapy | Chemotherapy | Follow-up (months) | Recurrence |
|---------------------------------|----------------|-----|-----|-----------------------------|------|--------------|-------------|------------------------------------------------|--------------|---------------|-------------------|------------|
| Dahlin and Ivins                | 1972           | ?   | ?   |                             | ?    | ??           | Subtotal resection                            | Yes          | No            | 7                 | No          |
| Denko et al                     | 1955           | 53  | M   | Facial swelling             | Right| ??           | Subtotal resection                            | Yes          | No            | 7                 | No          |
| Dran et al                      | 2007           | 12  | F   | Hearing loss                | Left | CT, MR       | Initially subtemporal and subdural approach with intercapsular removal. Second procedure—translabyrinthine combined with subtemporal way | Yes          | No            | 1.5               | Yes         |
| Fares et al                     | 1997           | ?   | ?   |                             | ?    | ??           | Subtotal resection                            | ?            | ?            | ?                 | ?          |
| Feely and Keohane               | 1984           | 42  | F   | Otalgia                     | Left | CT           | Mastoidectomy with en bloc resection          | No           | No            | 36                | No          |
| Flowers et al                   | 1995           | 8   | M   | Facial swelling             | Right| Yes          | En bloc resection                             | No           | No            | ?                 | ?          |
| Gaudet et al                    | 2004           | 28  | F   | Otalgia, hearing loss, blocked ear, TMJ pain | Right| Yes          | En bloc resection                             | No           | No            | 48                | No          |
| Harner et al                    | 1979           | 56  | M   | Hearing loss, blocked ear   | Left | Yes          | Mastoidectomy                                 | Yes          | No            | 35                | No          |
| 57                              | M   | Yes          | Mastoidectomy                                 | Yes          | No            | 94                | No          |
| 39                              | M   | Yes          | Mastoidectomy                                 | Yes          | No            | 48                | No          |
| 59                              | M   | Yes          | Mastoidectomy                                 | Yes          | No            | ?                 | ?          |
| Hirth et al                     | 1972           | ?   | ?   |                             | ?    | ??           | Subtotal resection                            | ?            | ?            | ?                 | ?          |
| Hong et al                      | 1999           | 41  | F   | TMJ pain                    | Right| CT, MR       | Curettage                                     | Yes          | Yes           | 27                | No          |
| 58                              | F   | Yes          | Mastoidectomy                                 | Yes          | No            | 37                | No          |
| 57                              | F   | Yes          | Mastoidectomy                                 | Yes          | No            | 27                | Yes         |
| 60                              | M   | Yes          | Mastoidectomy                                 | Yes          | No            | 37                | No          |
| 52                              | F   | Yes          | Mastoidectomy                                 | Yes          | No            | 29                | No          |
| Horn et al                      | 1980           | 39  | F   | Tinntus, hearing loss       | Left | Yes          | Mastoidectomy and mastoidectomy               | No           | No            | 12                | No          |
| 34                              | M   | Yes          | Mastoidectomy                                 | Yes          | No            | 12                | No          |
| Ishikawa et al                  | 2002           | 24  | M   | Facial swelling, trismus, TMJ pain | Right| CT, MR       | Curettage                                     | No           | No            | 24                | Yes         |
| Kobayashi et al                 | 2001           | 60  | F   | Facial swelling, trismus, TMJ pain | Left | CT, MR       | Curettage                                     | No           | No            | 18                | No          |

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| Article         | Date Published | Age | Sex | Presenting Symptom                  | Side | Preop biopsy | Preop CT/MR | Operation                        | Radiotherapy | Chemotherapy | Follow-up (months) | Recurrence |
|-----------------|----------------|-----|-----|-------------------------------------|------|--------------|-------------|----------------------------------|--------------|---------------|-------------------|------------|
| Koerbel et al28 | 2007           | 27  | F   | Headache, hearing loss              | Right| ??           | ?           | ?                                | ?            | No            | ?                 | ?          |
| Kurokawa et al7 | 2005           | 49  | M   | Right ?                 | Yes   | No           | No          | No                               | No           | No            | 84                | No         |
|                 |                | 27  | M   | Tinnitus, hearing loss, TMJ pain    | Right| ??           | ?           | ?                                | ?            | No            | 196               | No         |
|                 |                | 29  | M   | Hearing loss                       | Right| ??           | ?           | ?                                | ?            | No            | 132               | No         |
| Kutz et al1     | 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         |
|                 |                | 39  | F   | Hearing loss                       | Left | Yes          | 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         |
|                 |                | 70  | M   | Tinnitus, hearing loss             | Right| Yes          | CT          | Middle cranial fossa approach    | No           | No            | 216               | No         |
|                 |                | 62  | F   | Otaigia, blocked ear               | Left | Yes          | CT, MR      | Cranietomy with en bloc resection | No           | No            | 6                 | No         |
| Leong et al29   | 1994           | 23  | M   | Blocked ear                        | Left | Yes          | CT          | Cortical Mastoidectomy           | No           | No            | 11                | No         |
|                 |                | 31  | M   | Otaigia, Tinnitus, otorhea, hearing loss | Left | Yes          | CT, MR      | Subtotal petrosectomy/en bloc resection | Yes          | No            | 8                 | No         |
| Mizumatsu et al30 | 2008       | 52  | F   | Otaigia                            | Right| Yes          | CT, MR      | Previous surgical resection      | Yes          | No            | 48                | No         |
| Article                   | Date Published | Age | Sex | Presenting Symptom                                      | Side | Preop biopsy | Preop CT/MR | Operation                                                                 | Radiotherapy | Chemotherapy | Follow-up (months) | Recurrence |
|--------------------------|----------------|-----|-----|--------------------------------------------------------|------|--------------|-------------|---------------------------------------------------------------------------|--------------|--------------|-------------------|------------|
| Moon et al31             | 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         |
| Moothy et al22           | 2002           | 31  | M   | Otalgia, otorhea, hearing loss                        | Right| CT, MR       | Lateral temporal bone resection                                           | No           | No           | 70                | No         |
| Muntane et al33          | 1993           | 58  | F   | Headache, hearing loss                                | Right| CT, MR       | Mastoidectomy                                                            | No           | No           | 58                | No         |
| Narita et al34           | 1992           | 34  | F   | Hearing loss                                          | Left | CT, MR       | En bloc resection                                                       | No           | No           | 78                | No         |
| Rodríguez, Paramás et al35| 2006           | 31  | M   | Otalgia                                              | Left | Yes          | Craniofacial approach with complete removal                              | No           | No           | No                | No         |
| Piepgras et al36         | 1972           | 26  | M   | Headache                                             | Right| CT, En bloc resection                                                  | No           | No           | 12                | No         |
| Politi et al37           | 1991           | 53  | M   | Facial swelling                                      | Left | Yes          | Local excision and curettage                                             | No           | No           | 36                | No         |
| Pontius et al38          | 2003           | 38  | M   | Facial swelling, otalgia, otorhea, hearing loss       | Left | Yes          | Craniofacial and mastoidectomy                                           | No           | No           | 12                | No         |
| Selesnick et al6         | 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 al39          | 1997           | 30  | M   | Hearing loss                                         | Left | CT, MR       | Subtotal resection                                                       | No           | No           | No                | No         |
| Sput et al40             | 1971           | ?   | ?   | ?                                                      | ?    | ?            | ?                                                                       | ?            | ?            | No                | No         |
| Tanohata et al41         | 1986           | 55  | F   | Headache, otalgia, trismus, hearing loss              | Left | CT, MR       | En bloc resection                                                       | No           | No           | No                | No         |
| Vandenberg and Coley42   | 1950           | 39  | M   | Hearing loss, trismus, hearing loss                   | Left | Yes          | No                                                                      | Yes          | No           | 102               | No         |
| Varvares et al43         | 1992           | 33  | M   | Headache, facial swelling, otalgia, hearing loss, TMJ pain | Right| CT, MR       | En bloc resection                                                       | No           | No           | 24                | No         |
| Velizarov et al44        | 1971           | ?   | ?   | ?                                                      | ?    | ?            | ?                                                                       | ?            | ?            | No                | No         |
| Watanabe et al45         | 1999           | 43  | F   | Hearing loss, blocked ear                            | Left | CT, MR       | Mastoidectomy                                                           | No           | No           | 48                | No         |

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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 sub-total 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. 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.) CT imaging typically shows an expansile intraosseous soft tissue mass with internal calcification and occasional enhancement with intravenous contrast. Often there is a lytic nature to its growth. 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. The appearance is that of a heterogeneous mass on T-2 likely due to highly vascular fibrous tissue and intense cellularity. Postgadolinium enhancement on T-2 imaging there is heterogeneity with components of marked hyperintensity. 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. Fine needle aspiration (FNA) smears are moderately to markedly cellular and composed of...
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 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 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 resection13        | No           | 24                 | Further surgery—3 y follow-up post second surgery—no recurrence                    |
| Intracapsular removal12                               | Yes          | 6                  | Mx with curettage and RTx Follow-up 1 y postrecurrence—no abnormality detected     |
| Excision46                                            | No           | 6                  | Persistence                                                                        |
| Curettage46                                           | Yes          | 27                 | No                                                                                |
| Initially subtemporal and subdural approach with intracapsular removal | Yes          | 1.5                | Yes—at 1.5 mo; second procedure attended + RTx—disease-free 36 mo later            |

Table 3 Patients Treated with Postoperative Radiotherapy by Surgical Approach

| Surgical Approach                                      | Number of Patients |
|--------------------------------------------------------|--------------------|
| Curettage29,46                                         | 3                  |
| En bloc resection33                                     | 2                  |
| Excision46                                              | 1                  |
| Initially subtemporal and subdural approach with intracapsular removal | 1                |
| Second procedure—translabyrinthine combined with subtemporal way14 |                  |
| Intracapsular removal12                                 | 1                  |
| Mastoidectomy23                                         | 2                  |
| No surgery39                                            | 1                  |
| Previous surgical resection16                           | 1                  |
| Subtotal petrosectomy/en bloc resection25               | 1                  |
| Subtotal resection11                                     | 2                  |
literature. Given that pelvic chondroblastoma tumors are known to metastatic to both lung and abdomen,\(^\text{10}\) (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.\textsuperscript{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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