Chondrosarcoma

- Low Grade Laryngeal Chondrosarcoma of the Cricoid Cartilage: A Case Report
- Quality appraisal of radiomics-based studies on chondrosarcoma using METhodological RadiomICs Score (METRICS) and Radiomics Quality Score (RQS)
- Multidimensional bioinformatics analysis of chondrosarcoma subtypes and TGF-beta signaling networks using big data approaches
- Oral Soft Tissue and Jawbone Sarcomas: A Retrospective Clinicopathologic Analysis of 128 Cases from Two Institutions and Comprehensive Literature Review
- From birth to triumph: A rare case report of rib chondrosarcoma with unprecedented growth patterns
- First case report of radiation-recall myositis following trabectedin in patient with stage IV mesenchymal chondrosarcoma
- Non-Coding RNAs in Diagnostic Pathology of High-Grade Central Osteosarcoma
- Global bone cancer incidence and death rate analysis at 40 years

Chondrosarcomas are extremely rare, locally invasive, and potentially mortal malignant cartilaginous tumors.

The most common sites for chondrosarcoma to grow are the pelvis and shoulder, along with the superior metaphysial and diaphysial regions of the arms and legs.

However, chondrosarcoma may occur in any bone, and are sometimes found in the skull, particularly at its base.

Rare in the craniovertebral junction.

Classification

see Mesenchymal chondrosarcoma.

see Myxoid chondrosarcoma.

Chondrosarcoma Classification

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1. Based on Histological Grade (WHO 2020)

* **Grade 1 (Low-grade chondrosarcoma)**

- Rare mitoses
- Low cellularity
- Slight nuclear atypia
- Sometimes called *atypical cartilaginous tumor (ACT)* when located in appendicular skeleton

* **Grade 2 (Intermediate-grade)**

- Increased cellularity
- Moderate atypia
- Mitoses more frequent
- Higher risk of recurrence and metastasis

* **Grade 3 (High-grade)**

- High cellularity
- Significant atypia and mitotic activity
- Aggressive behavior with high metastatic potential

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2. Based on Location

* **Central (medullary)** – Most common * **Peripheral** – Often develops from osteochondromas * **Juxtacortical (periosteal)** – Rare, arises on bone surface

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3. Based on Histological Subtype

* **Conventional chondrosarcoma** (most common) * **Clear cell chondrosarcoma** – Low-grade, epiphyseal * **Mesenchymal chondrosarcoma** – High-grade, biphasic pattern * **Dedifferentiated chondrosarcoma** – Aggressive, with high-grade non-cartilaginous component * **Myxoid chondrosarcoma** – Controversial; may overlap with extraskeletal myxoid tumors

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4. Based on Anatomic Site

* **Axial skeleton** (pelvis, spine, skull base) – Often high-grade, worse prognosis * **Appendicular skeleton** (long bones) – Typically lower grade, better outcomes

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5. Based on Molecular Features

* **IDH1/IDH2 mutations** – Present in many central and dedifferentiated chondrosarcomas * **COL2A1 alterations**, **CDKN2A deletions**, and **TERT promoter mutations** – Associated with dedifferentiation and poor prognosis

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6. Extraskeletal Chondrosarcoma

* Rare, arises in soft tissues without bone involvement

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Would you like a version of this classification in PDF format or adapted for clinical documentation (e.g., DokuWiki or HTML)?

Differential diagnosis

Chordoma.

Chondroma.

Treatment

Standard management of chondrosarcoma involves surgical resection and adjuvant radiation therapy.

Skull base chondrosarcoma

see Skull base chondrosarcoma.

Parafalcine chondrosarcoma

Parafalcine chondrosarcoma is extremely rare, and may be difficult to differentiate preoperatively from falx meningioma. An 18-year-old woman presented with a parafalcine chondrosarcoma incidentally detected as a small lesion 2 years before admission, suggesting falx meningioma. Brain computed tomography and magnetic resonance imaging just before admission revealed the parafalcine lesion had increased by about nine times in volume during the last 2 years. Single-photon emission computed tomography (SPECT) after intravenous administration of both thallium-201 chloride [1].

Case series

see Chondrosarcoma case series.

Case reports

A 25-year-old female underwent attempted endoscopic endonasal resection of an advanced right-

sided chondrosarcoma. During resection of the tumor, brisk arterial bleeding was encountered consistent with focal injury to the right cavernous ICA. Stable vascular hemostasis could not be achieved with tamponade. An intravenous bolus dose of adenosine was administered to induce a transient decrease in systemic blood pressure and facilitate placement of the muscle patch over the direct site of vascular injury. The patient subsequently underwent endovascular deconstruction of the right ICA.

This is the first reported use of adenosine to induce transient hypotension for a major vascular injury sustained during endonasal skull-base surgery. Based on well-established safety data from neurosurgical application, adenosine has the potential to be used as a safe and effective adjunctive technique in similar endonasal circumstances and may represent an additional tool in the armamentarium of the skull-base surgeon. Surgeons should consider having adenosine available when a risk of ICA injury is anticipated [2].

References

[1]
201)TlCl) and N-isopropyl-p-[(123)I]iodoamphetamine ((123)I-IMP) demonstrated no abnormal uptake of either tracer. Histological examination revealed classic low-grade chondrosarcoma. Parafalcine chondrosarcoma should be considered at this site if relatively rapid growth is observed. SPECT using (201)TlCl and (123)I-IMP may be useful to discriminate parafalcine low-grade chondrosarcoma from meningioma or other tumours originating in this region ((Tosaka M, Fukasawa Y, Takahashi A, Sasaki A, Saito N. Incidentally detected parafalcine chondrosarcoma. Acta Neurochir (Wien). 2005 Jul;147(7):795-9; discussion 799. Epub 2005 May 23. PubMed PMID: 15864410.

[2]
Fastenberg JH, Garzon-Muvdi T, Hsue V, Reilly EK, Jabbour P, Rabinowitz MR, Rosen MR, Evans JJ, Nyquist GN, Farrell CJ. Adenosine-induced transient hypotension for carotid artery injury during endoscopic skull-base surgery: case report and review of the literature. Int Forum Allergy Rhinol. 2019 Jul 10. doi: 10.1002/alr.22381. [Epub ahead of print] PubMed PMID: 31291066.