Recognizing Idiopathic Mandibular Condylar Resorption: A Case-Based Review

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Outline

- Disclosure
- Teaching Points
- Introduction
- Cases
- Discussion

Disclosures

- None

Teaching Points

- Describe the epidemiology and clinical features of idiopathic condylar resorption (ICR)
- Recognize the importance of ICR
- Review the imaging findings
- Differentiate ICR from other causes of condylar resorption
- Highlight the role of radiologists in early detection and prevention of future complications

Introduction

- Mandibular condylar resorption is an uncommon yet clinically significant condition characterized by progressive loss of the mandibular condylar process.
- It occurs predominantly in adolescent females (≈90%), with hormonal influences thought to play a role in its pathogenesis.
- Presenting symptoms may include jaw pain, joint sounds, limited mandibular range of motion, malocclusion, facial asymmetry, and altered bite efficiency.

Introduction

- Primary: Idiopathic
- Secondary: Trauma, prior temporomandibular joint (TMJ) surgery, corticosteroid use, or systemic autoimmune diseases.
- Idiopathic condylar resorption occurs without identifiable systemic or local pathology and is typically bilateral.

Introduction

- Primary ICR is a diagnosis of exclusion, with juvenile idiopathic arthritis being the key differential diagnosis to rule out.
- Accurate diagnosis relies on clinical correlation and imaging.
- Radiologists are essential in identifying early signs of the disease.

Introduction

- Management strategies vary depending on disease activity and progression.
  - Non-surgical approaches may include NSAIDs, splint therapy and observation.
  - Surgical options include disc repositioning, joint reconstruction, orthognathic procedures or TMJ replacement.

Cases

Case 1:

A 12-year-old female with a history of retrognathia developed new occlusal changes after completing Stage I orthodontic treatment for Class III malocclusion.

She has no prior medical history, trauma, or surgical interventions. The patient denies temporomandibular joint (TMJ) pain, clicking, or other joint-related symptoms.

On examination, a new open bite discrepancy was identified without TMJ tenderness or audible sounds.

Laboratory evaluation was unremarkable.

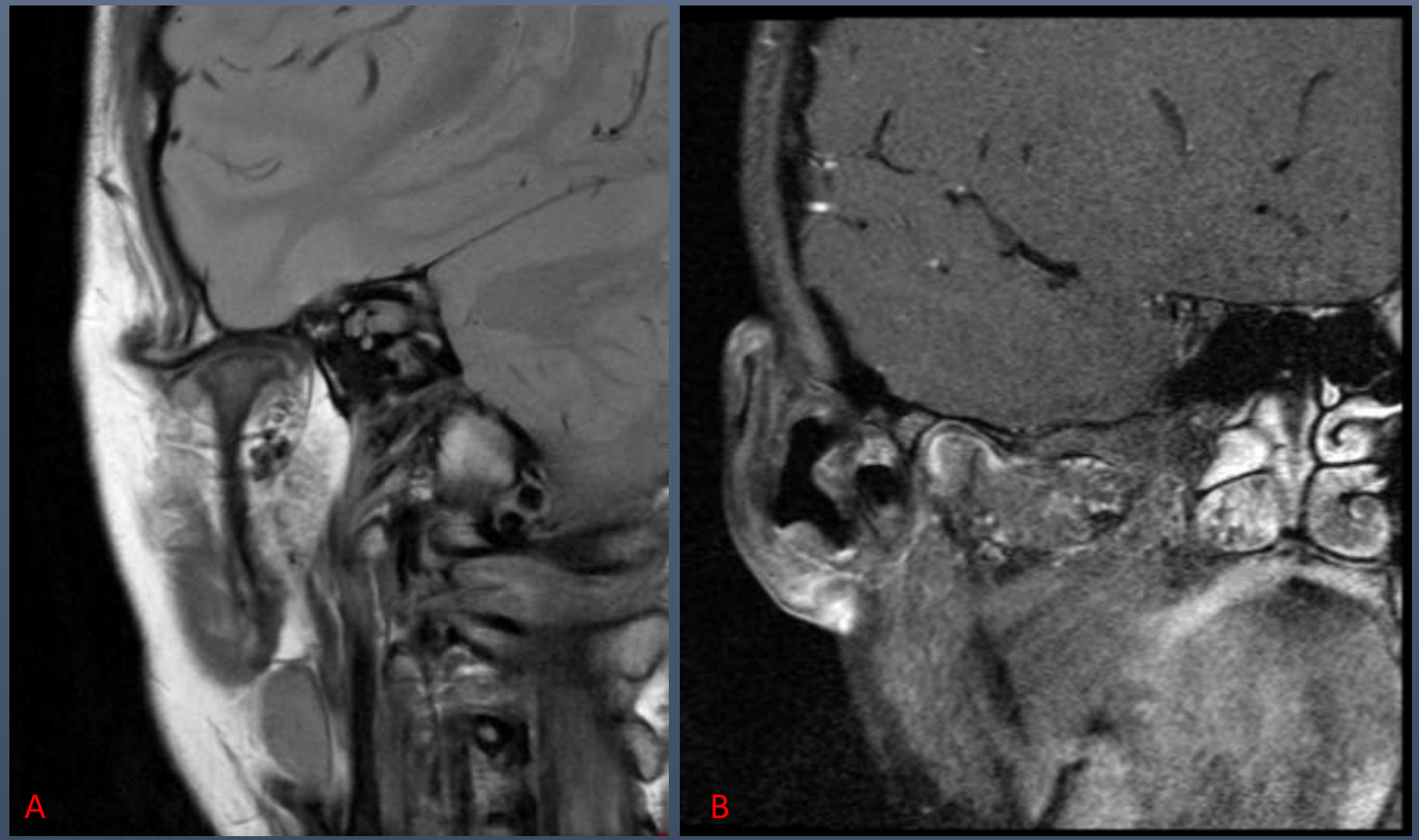

Fig.1: Flattening of the right mandibular head (A: Coronal proton density), and abnormal enhancement surrounding the temporomandibular articulation and mandibular condyle (B: Coronal T1 fat-sat postcontrast).

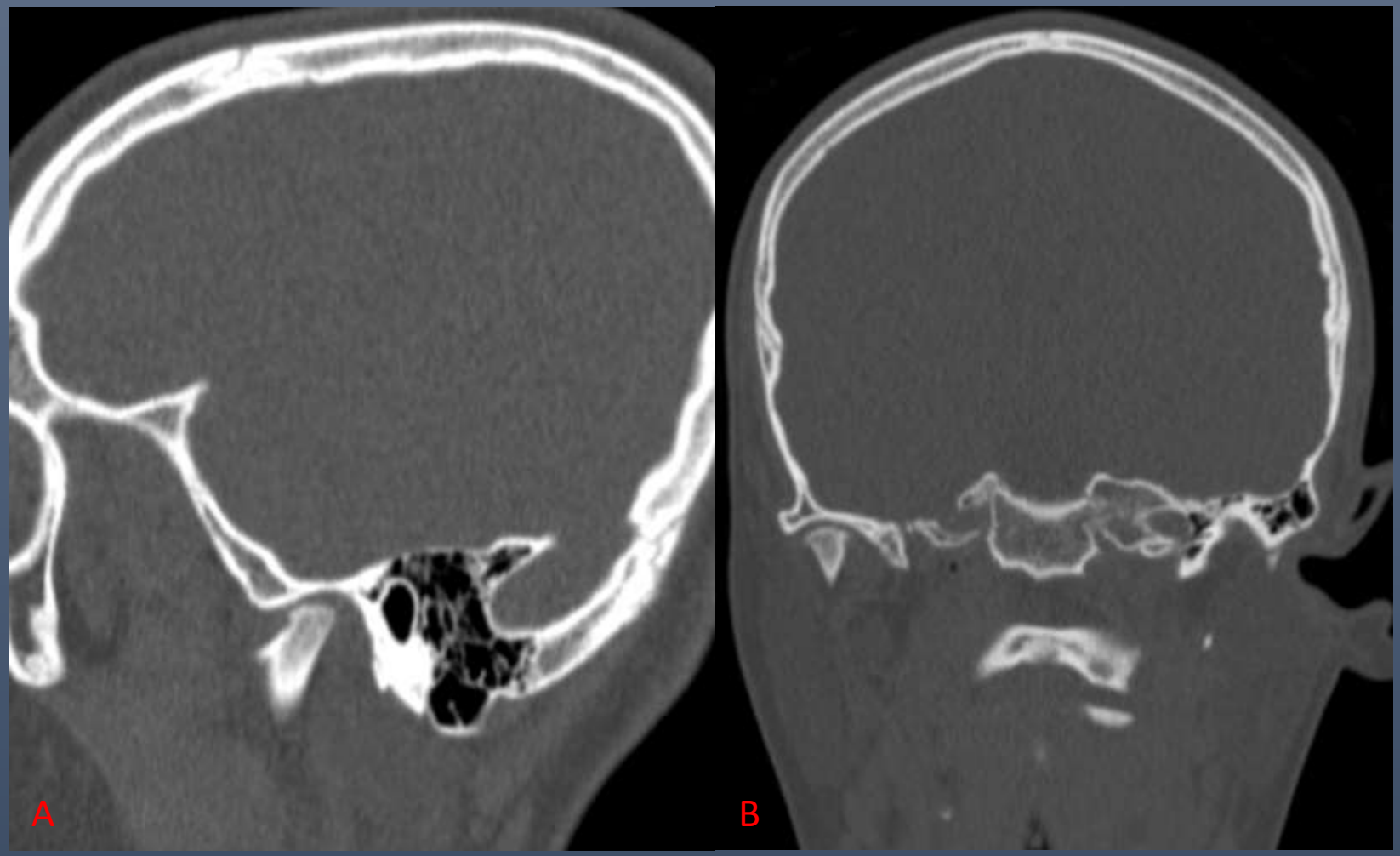

Fig.2: A: Sagittal and B: Coronal CT images demonstrate flattening and irregularity/small erosions of the right mandibular condyle.

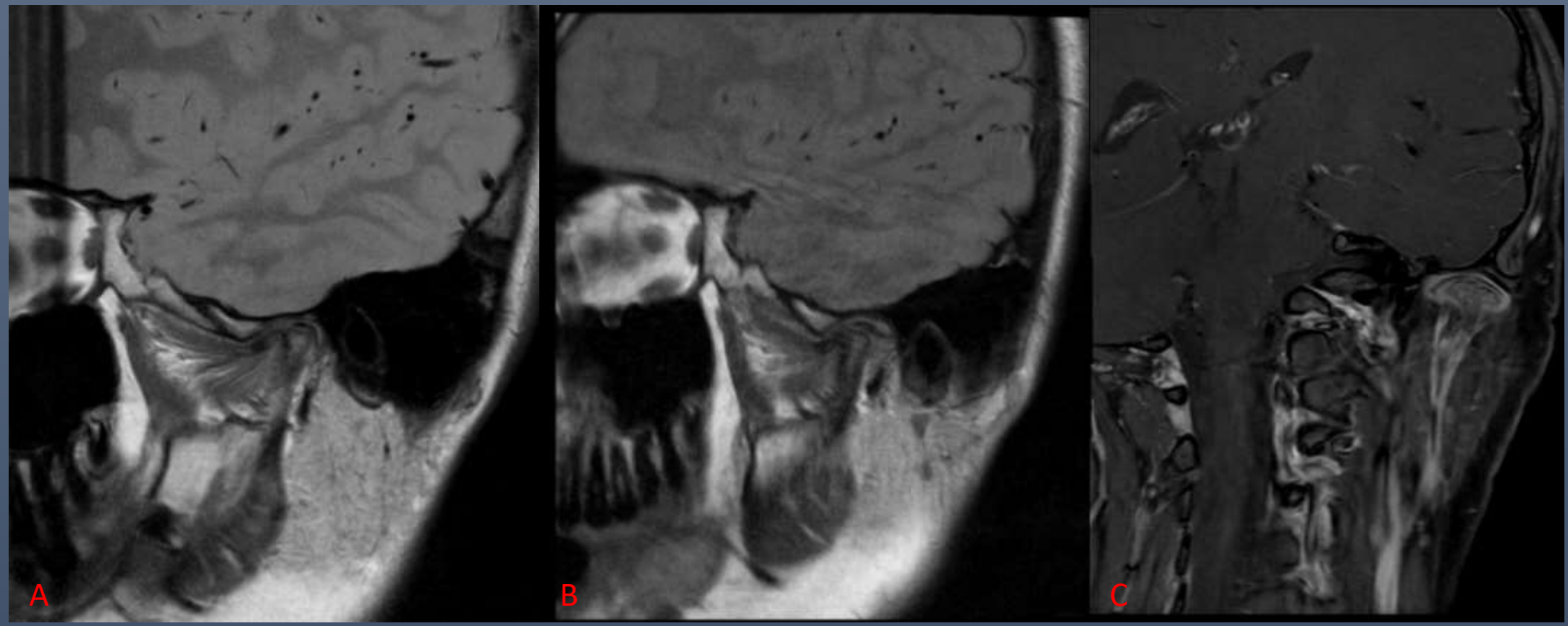

Fig.3: Sagittal proton density images (A: Closed mouth view and B: Open mouth view) demonstrate thinning of the articular disc as well as flattening/resorption of the left mandibular condyle. C: Coronal post contrast T1 fat-sat image reveals abnormal enhancement surrounding the left temporomandibular articulation.

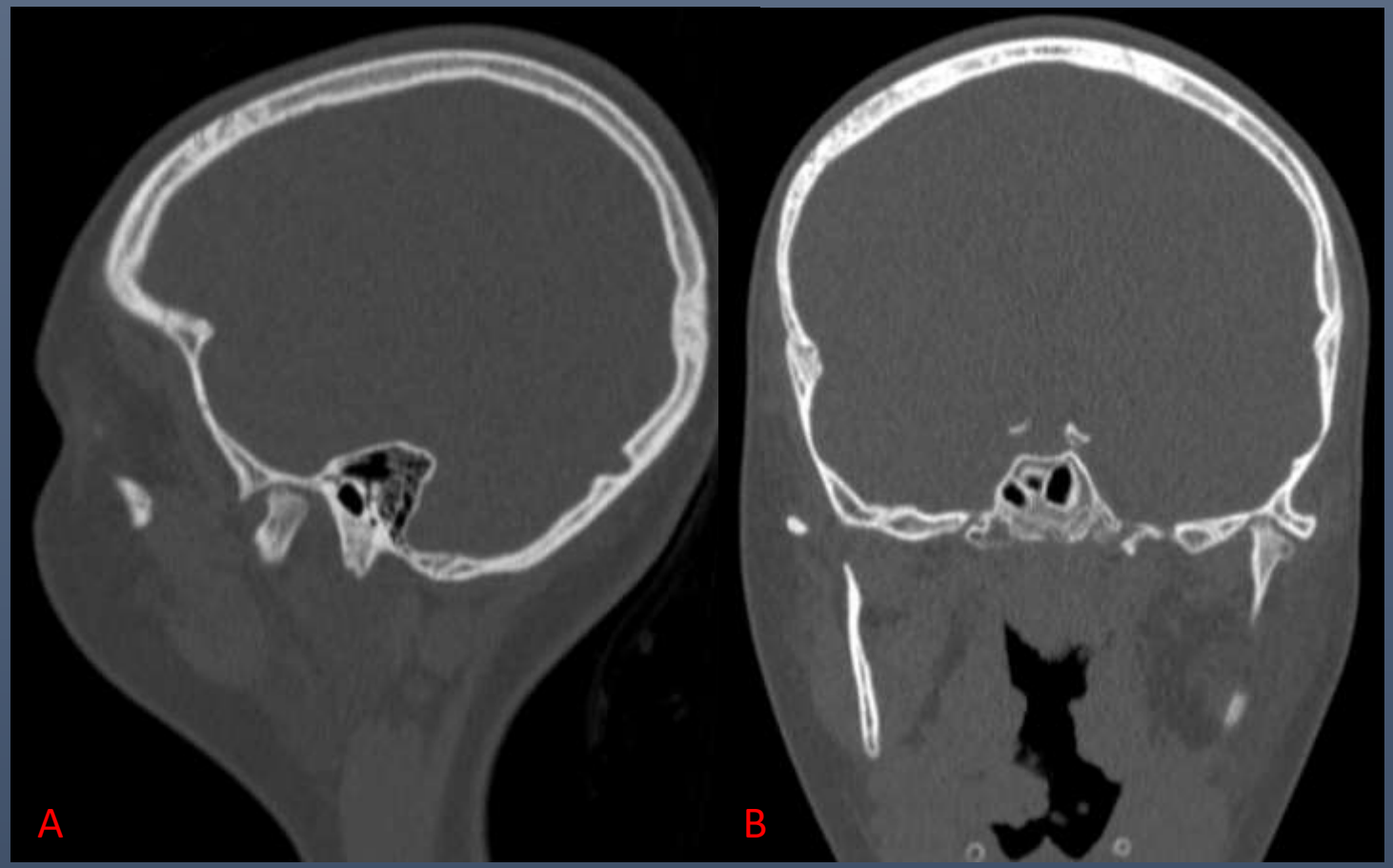

Fig.4: A: Sagittal and B: Coronal CT images demonstrate flattening, minor cystic erosions and irregularity of the left mandibular condyle.

- Imaging findings are most consistent with idiopathic condylar resorption (ICR); however, other inflammatory conditions remain in the differential given the presence of contrast enhancement.
- Although the rheumatologic workup was unremarkable, excluding systemic inflammatory disorders such as juvenile idiopathic arthritis (JIA), the patient will be started on an anti–TNF-α agent as empiric therapy.
- Plastic surgery and oral maxillofacial surgery teams have deferred intervention at this time but anticipate possible surgical management if her symptoms or imaging findings worsen.

Case 2:

A 17-year-old female with no past medical history presents for a three-year history of gradual-onset jaw pain and intermittent clicking.

Rheumatologic evaluation was negative, effectively excluding secondary causes.

Initial MRI demonstrated bilateral condylar flattening and irregularity within shallow glenoid fossae, accompanied by restricted mandibular motion.

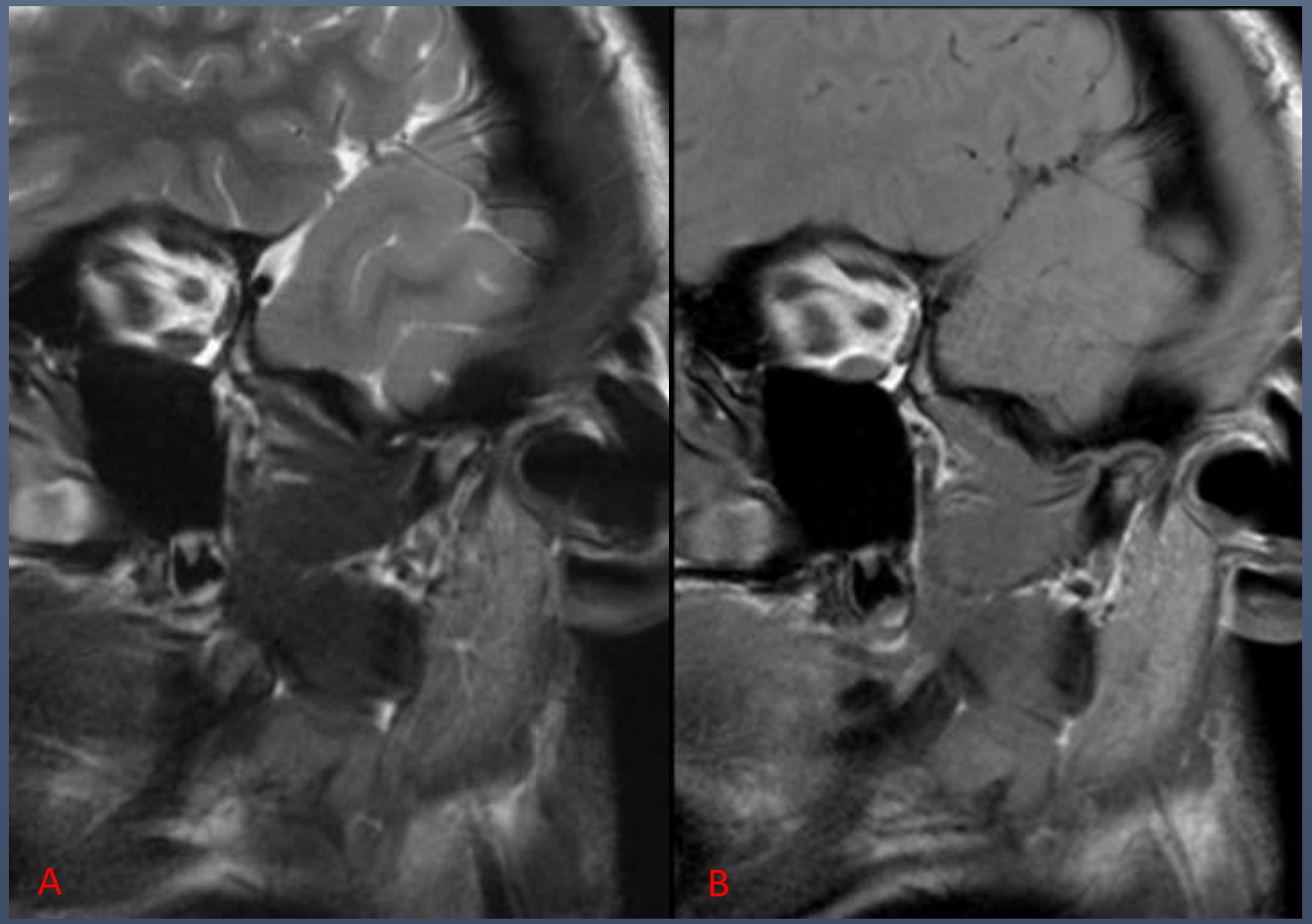

Fig.5: Right sagittal oblique A: T2 and B: Proton-density images demonstrate abnormal appearance of the mandibular condyle which is seated within abnormally shallow glenoid fossa.

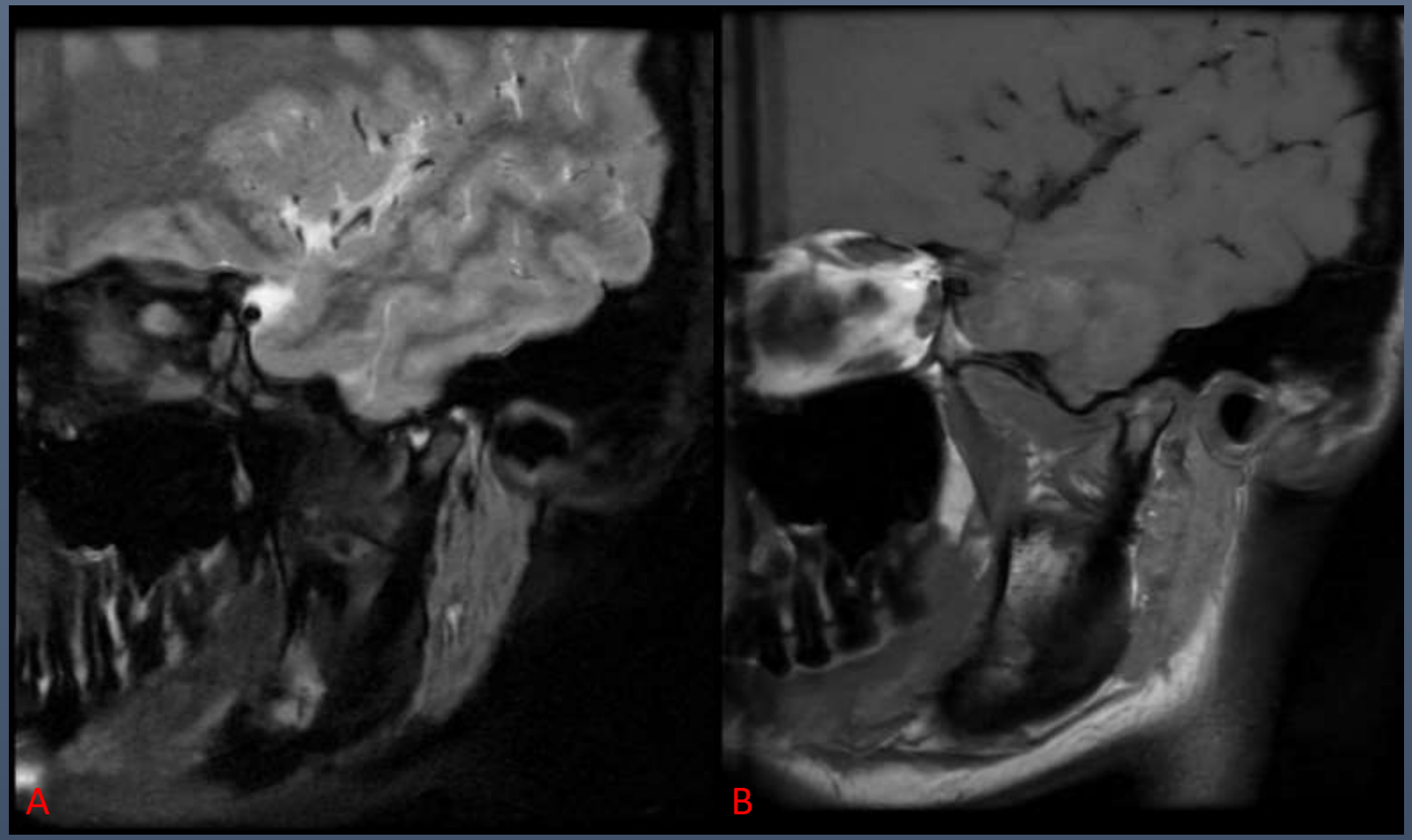

Fig.6: 2 years later. Right sagittal closed mouth views A: T2 fat-sat and B: T1 demonstrate erosive changes of the mandibular condyle in addition to flattening of the condyle and glenoid fossa. The articular disc is also markedly degenerated and only faintly identified. Overall findings worsened in the interim.

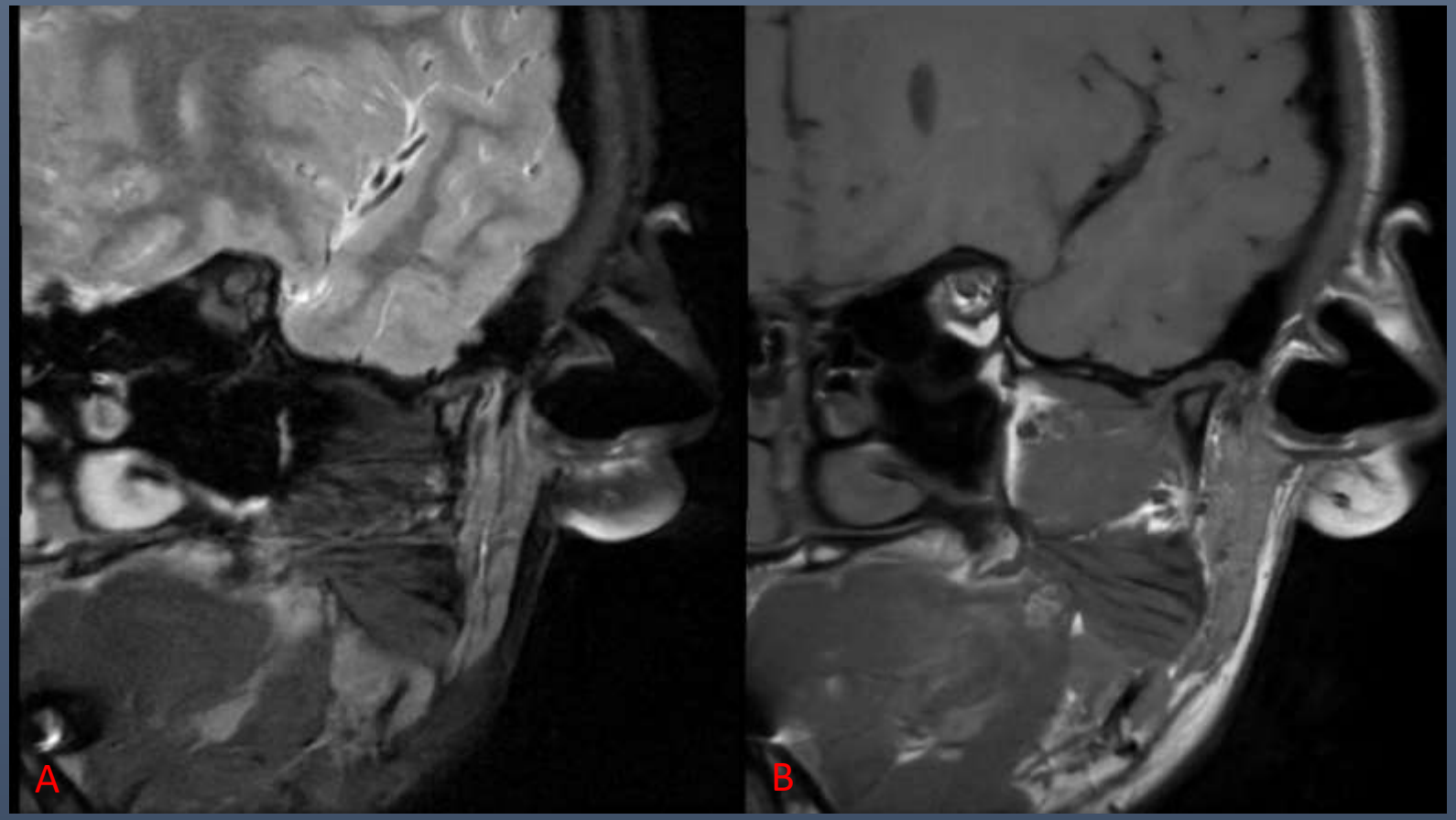

Fig.7: Left sagittal closed mouth views A: T2 fat-sat and B: T1 demonstrate flattening of the mandibular condyle within an abnormally shallow glenoid fossa. The articular disc is also markedly degenerated and only faintly identified.

She has been monitored with annual MRI for 3 years, which has shown progressive condylar resorption.

Surgical intervention is now being considered as the patient approaches skeletal maturity.

Conclusion

- Idiopathic condylar resorption is a rare but important cause of temporomandibular joint dysfunction, predominantly affecting adolescent females and typically bilateral.
- Early recognition of ICR is essential to prevent long-term complications.
- Characteristic imaging findings include but not limited to condylar flattening, microcystic bony changes, shallow glenoid fossa, disc displacement and atrophy, and bone marrow edema.
- While ICR is generally non-inflammatory and contrast enhancement is uncommon, it may be observed in cases with active resorption.

Conclusion

- Radiologists should maintain a high index of suspicion in the appropriate clinical setting and play a central role in early detection, guiding appropriate multidisciplinary intervention and preventing long-term complications.
- Clinical clues such as jaw pain, restricted joint motion, or new occlusal changes should raise suspicion and alert the interpreting radiologist to carefully evaluate the temporomandibular joints.

Conclusion

- Management of ICR depends on patient`s age, the extent of temporomandibular joint (TMJ) involvement and the severity of symptoms and includes:
  - Conservative therapies such as analgesics, physical therapy and occlusal splints
  - Surgical management such as disc repositioning (discopexy), corrective orthognathic surgery, surgical repositioning of TMJ disc and stabilization or, in advanced cases, total TMJ replacement with prosthesis.

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Questions

- Please e-mail with any questions

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