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Case Report

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UNVEILING THE SILENT CYST: A CASE OF TRAUMATIC BONE CYST IN THE PEDIATRIC MANDIBLE: A CASE REPORT

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ABSTRACT

Traumatic bone cyst (TBC) is a rare, non-epithelialized, intraosseous lesion of the jaws, most frequently observed in the mandibles of children and adolescents.[1,2] Despite its name, the association with trauma remains speculative, as many cases have no documented history of injury.[3,4] Clinically, TBCs are often asymptomatic and are commonly discovered incidentally during routine radiographic evaluations.[1,2] When symptoms are present, they may include mild swelling or discomfort, though these signs are typically minimal.[1,2] Radiographically, TBCs appear as well-defined, unilocular radiolucencies, often with scalloped margins extending between the roots of adjacent teeth without causing root resorption or displacement.[2,4,5] The overlying cortical bone is usually intact, and the involved teeth remain vital.[1,4] The absence of an epithelial lining classifies TBC as a pseudocyst, and diagnosis can only be confirmed through surgical exploration.[2,5] Intraoperatively, an empty cavity or one containing serosanguinous fluid is typically encountered, and curettage of the bony walls is often sufficient to stimulate healing.[1,3] The prognosis for TBC is excellent, with most lesions resolving completely after surgical intervention, and recurrence is rare.[2,5] Understanding the typical presentation of TBC is essential to avoid unnecessary aggressive treatment and to distinguish it from other radiolucent jaw lesions.[3,4] This article discusses the clinical, radiographic, and surgical aspects of traumatic bone cysts, emphasizing the importance of accurate diagnosis and conservative management, especially in pediatric cases.[1,2,3,4,5]

KEYWORDS: Traumatic bone cyst, Mandible, Radiolucent jaw lesion, Pediatric oral pathology.

INTRODUCTION

A traumatic bone cyst (TBC), also known as a simple bone cyst or idiopathic bone cavity, is a non-neoplastic, non-epithelialized intraosseous lesion that is considered a pseudocyst due to the absence of an epithelial lining. It is a rare entity, most commonly identified in the mandible and predominantly affecting individuals in the first two decades of

life, with a slight male predilection.[5] Although the term “traumatic” suggests a direct link to injury, a history of trauma is often absent, and the exact etiology remains unclear. Several theories have been proposed, with the most accepted being the trauma-hemorrhage theory, where trauma leads to intramedullary hemorrhage that fails to organize, resulting in cystic cavity formation.[3]

TBCs are typically asymptomatic and are often discovered incidentally on routine radiographs. When symptoms are present, they may include mild pain, swelling, or a feeling of fullness in the affected region.[1] Radiographically, TBCs present as well-defined unilocular radiolucencies, often exhibiting scalloped margins that interdigitate between the roots of adjacent teeth without causing root resorption or displacement. The overlying cortical bone is usually preserved, and the teeth associated with the lesion are vital.[4]

These lesions are most frequently located in the posterior mandible, particularly between the canine and third molar regions, although occurrences in the anterior mandible and maxilla have also been reported.[4] TBCs may occasionally cause cortical expansion or thinning in larger lesions, and in rare cases, facial asymmetry may be noted.[6] Surgical exploration is essential for definitive diagnosis, often revealing an empty cavity or one containing serosanguinous fluid. Curettage of the bony walls usually stimulates healing, and spontaneous bone regeneration is expected following treatment.[1]

This case presents an 11-year-old pediatric patient diagnosed with a traumatic bone cyst in the mandible and highlights the clinical, radiographic, and surgical aspects of diagnosis and management.

CASE REPORT

A 11-year-old female patient presented to our hospital for alignment of her teeth where she took OPG and a radiolucency was seen in the periapical region of 33. patient did not have any symptoms for the same. patient gives history of fall 5 years back when she was playing at school. no fractures or hospitalisation was done post incident. regular dressing was done for abrasion over the chin. Patient does not give any relevant medical history.

Extra-oral Examination (FIG-1, 2)

ON INSPECTION

- No gross facial asymmetry noted
- TMJ movements satisfactory
- No extraoral pus discharge, sinus tract, or erythema was present.
- The overlying skin appeared normal.

ON PALPATION

- No local rise in temperature noted.
- No tenderness noted
- No step or crepitus noted
- Lower border of mandible intact
- Lymphnodes were non tender and non palpable.
- No paraesthesia noted.

Fig. 1: Pre op Profile.

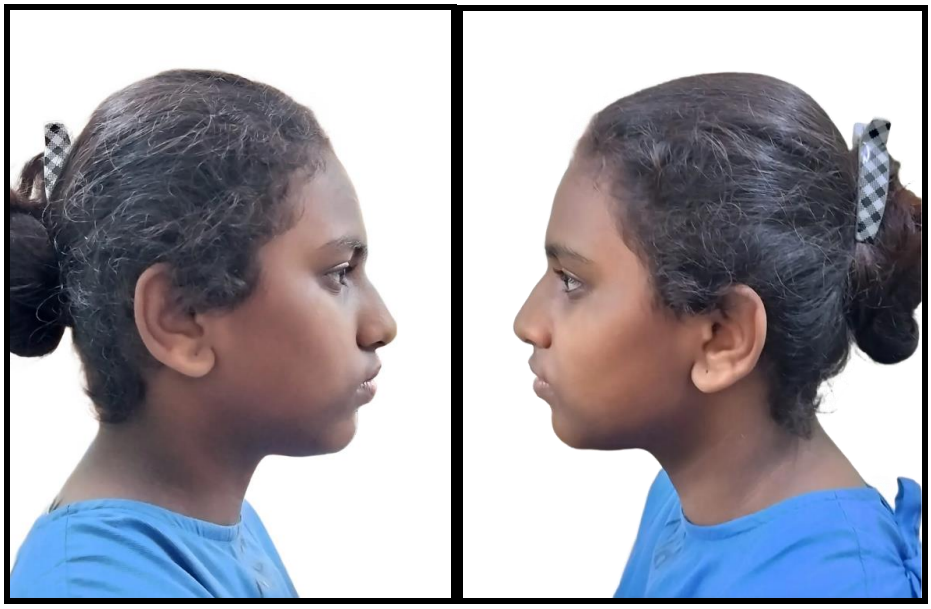

Fig. 2: Pre op Lateral.

Intraoral Examination (FIG-3)

- Mouth opening was satisfactory.
- Bilateral occlusion was stable.
- Ellis class 1 fracture was noted in relation to 21.
- No erythema /pus discharge noted.
- No tooth mobility or tender on percussion noted.
- Overlying mucosa appeared normal
- On palpation, no tenderness/crepitus noted.
- No paresthesia noted.

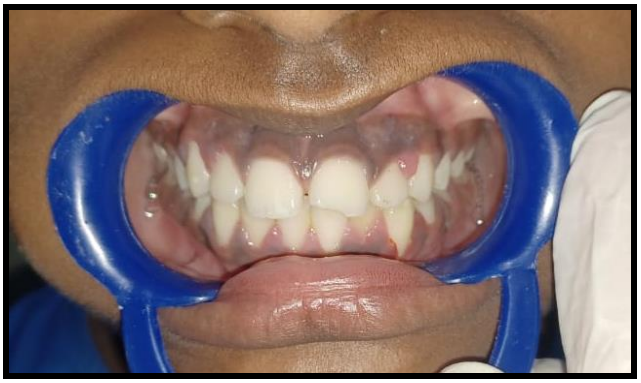

Fig. 3: Pre op Occlusion.

Radiographic Findings (FIG-4, 5, 6)

- Cone Beam Computed Tomography (CBCT) revealed a well-defined, expansile, radiolucent cystic lesion noted in the left anterior mandible at the periapical region of 33and 34 noted.The buccal and lingual plates were intact without any perforations.
- The lesion measured approximately 14 mm supero-inferiorly, 9.5 mm mesio-distally, and 17 mm labio-lingually.

Prior to surgery Patient was advised for root canal treatment with respect to 33, 34.

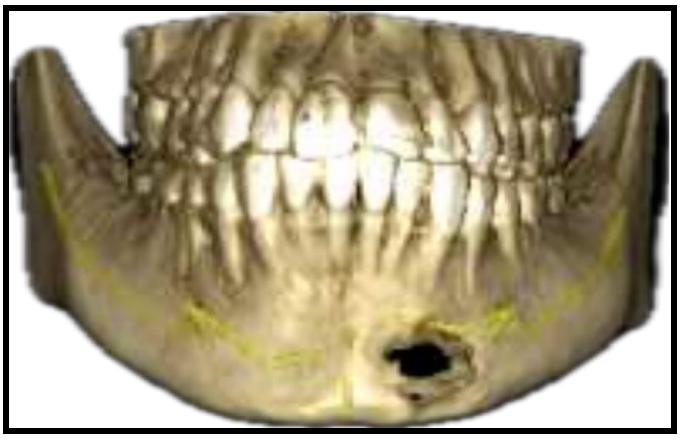

Fig. 4: Pre op Intra Oral 3d View.

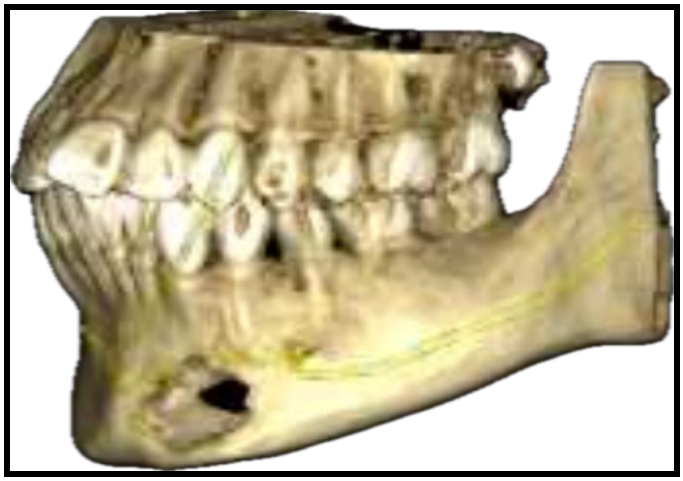

Fig. 5: Pre op Intra Oral 3d View.

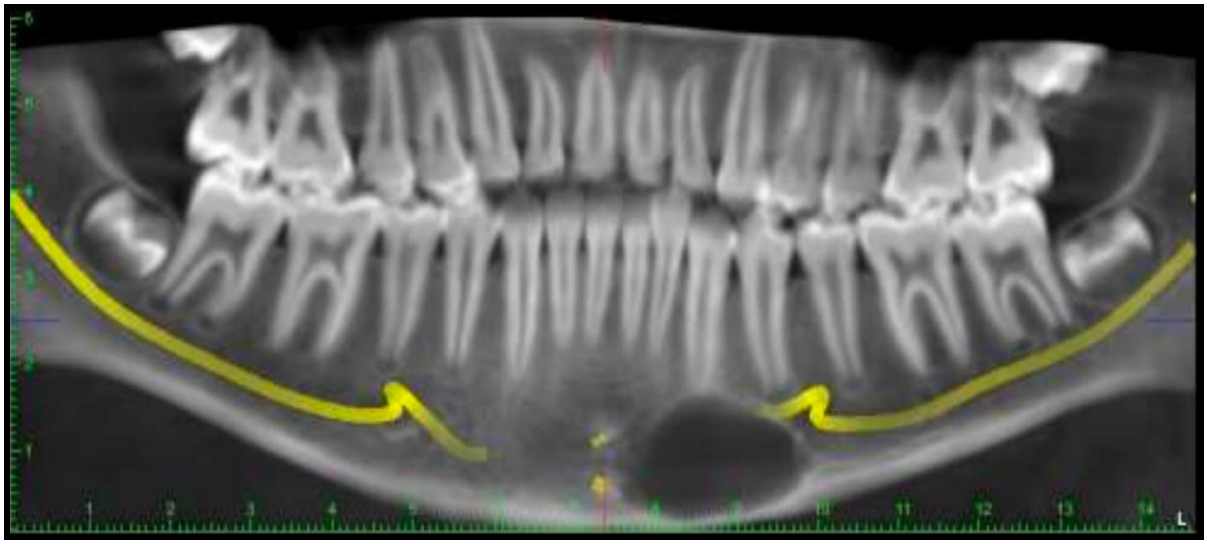

Fig. 6: Pre op Opg.

PROCEDURE

- General anesthesia was achieved using right nasal intubation.
- Painting and draping done using standard aseptic protocols.
- Local anaesthesia with 2% lignocaine with 1:80000 adrenaline was administered to the proposed surgical site.
- Mandibular vestibular incision was placed from 42 to 35 region.
- Mucoperiosteal flap was raised and a bony window was created using no.HP 8 bur to expose the cyst lining. (FIG-7).
- Post exposure a hollow cavity with sparse tissue noted.
- Cystic remnants were enucleated.

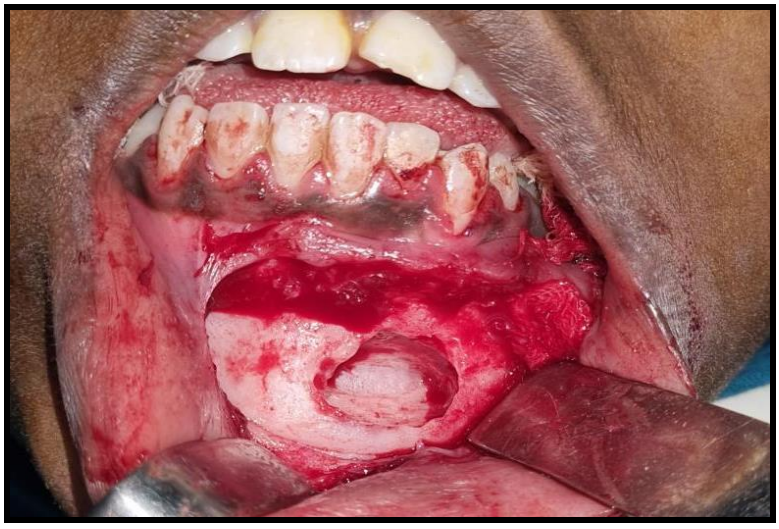

Fig. 7: Showing Enucleation of Cyst.

- Surgical site was irrigated with betadine and saline.
- Hemostasis was achived and Abgel was placed into the bony defect.
- Closure achieved using 3-0 vicryl (FIG-8)
- Pressure pack and dynaplast placed.

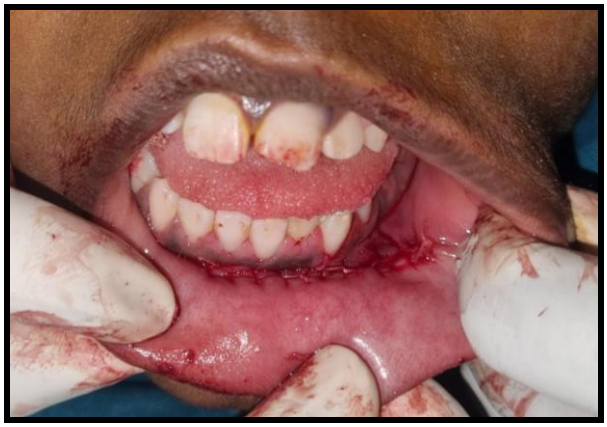

Fig. 8: Suturing Performed Using 3-0 Vicryl.

- Specimen was sent for histopathological evaluation.
- Patient was extubated and shifted to the post-operative ICU where she was under observation for a period of 6 hours post which patient was shifted to ward. In the immediate post-operative period, patient was closely monitored for any excessive bleeding from the operated site.

The patient had an uneventful post-operative period with satisfactory healing. Patient was followed up for every week in 1st month and every 2 weeks in 2nd month and once in 3rd month. No signs of pus discharge, tenderness or paraestheisa was noted.

Fig. 9: Post op Profile.

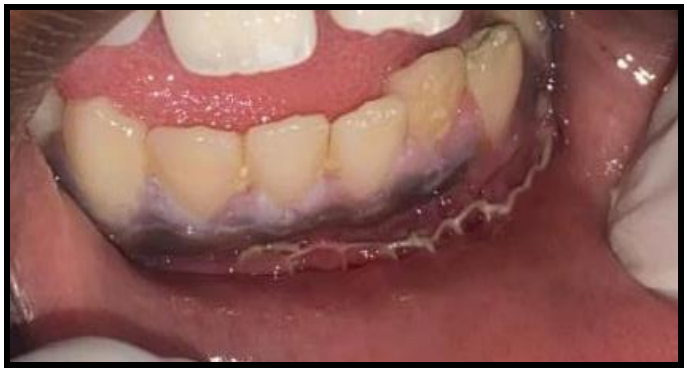

Fig. 10: Post op Intra-Oral.

DISCUSSION

Traumatic bone cyst (TBC), first described by Lucas in 1929, is a benign, non-epithelialized intraosseous lesion that is considered a pseudocyst due to the absence of an epithelial lining. Despite its name, a clear traumatic event is not always associated with its occurrence. TBC is relatively uncommon, comprising less than 1% of all jaw cysts. It most frequently appears in adolescents and young adults, particularly between the ages of 10 and 20, with a slight male predilection. The mandible, especially the posterior region, is the most frequently affected site, while maxillary involvement is considered rare.

Clinically, traumatic bone cysts are typically asymptomatic and are often detected incidentally during routine dental radiographs. However, in some cases, patients may experience mild pain, swelling, or a slight delay in eruption of permanent teeth. The overlying mucosa usually appears normal, and unless the lesion becomes extensive, cortical expansion is not commonly observed. The posterior mandible is the most common location, particularly between the canine and third molar regions. Teeth associated with the cyst are generally vital and show no signs of root resorption or displacement, making clinical diagnosis based solely on symptoms challenging.

The pathogenesis of traumatic bone cysts (TBC) is believed to involve several contributing factors. The most widely accepted theory suggests that trauma leads to the formation of an intraosseous hematoma. Over time, the blood clot may undergo liquefaction, and enzymatic activity results in the breakdown of surrounding bone tissue. Thomas proposed that trauma-induced subperiosteal bleeding could trigger osteoclastic bone resorption. Additionally, other proposed mechanisms include degenerative changes in bone tumors, alterations in calcium metabolism, and disturbances in normal bone development. Factors such as low-grade chronic infections, increased bone resorption activity, bleeding within the bone marrow, and ischemic bone necrosis have also been considered in the pathogenesis of TBC.

Radiographically, TBC presents as a well-circumscribed unilocular radiolucency with smooth or scalloped borders that may extend between the roots of adjacent teeth. It often lacks any effect on surrounding anatomical structures, maintaining the integrity of the lamina dura and periodontal ligament. A scalloped appearance along the roots is considered characteristic and is often used as a key diagnostic clue. Despite the suggestive radiographic appearance, definitive diagnosis typically requires surgical exploration due to its non-specific presentation.

Histopathologically, TBC is unique in that it does not contain an epithelial lining, which is why it is classified as a pseudocyst. The cavity is usually empty or may contain a small amount of serosanguinous fluid. When tissue is recovered during surgical exploration, it generally consists of a thin fibrous connective tissue membrane. This membrane may contain elements such as hemosiderin-laden macrophages, red blood cells, cholesterol clefts, and occasionally multinucleated giant cells. No inflammatory infiltrate or epithelial components are found, supporting the diagnosis of a pseudocystic lesion. The absence of infection and inflammation further distinguishes TBC from other odontogenic and non-odontogenic cysts.

The etiology of traumatic bone cyst remains unclear. Although its name suggests a traumatic origin, many cases lack a confirmed history of trauma. One prevailing theory is that minor trauma causes an intraosseous hematoma that fails to organize and instead undergoes liquefaction, leading to the development of an empty cavity. Other theories include

abnormalities in bone metabolism or localized vascular accidents. Despite these uncertainties, the lesion remains benign, non-progressive, and self-limiting in most cases.

The primary treatment for traumatic bone cyst involves surgical exploration and gentle curettage of the cavity walls. This procedure induces bleeding into the space, which subsequently promotes new bone formation and healing. In most cases, no grafting is required, as spontaneous regeneration occurs within several months. Follow-up radiographs typically show progressive bone fill and complete resolution within 6 to 12 months. Recurrence is rare, and the long-term prognosis is excellent. In cases where the lesion fails to heal or recurs, reevaluation is necessary to rule out other pathologies or consider secondary causes. Early detection and intervention ensure favorable outcomes.

CONCLUSION

Traumatic bone cyst (TBC) is a benign, non-epithelialized lesion of the jaw that poses diagnostic and etiological challenges due to its unusual presentation and unclear pathogenesis. Often discovered incidentally during routine radiographs, TBC most commonly affects adolescents and young adults, with the posterior mandible being the most frequent site. Despite its name, a history of trauma is not always evident, though trauma remains the most widely accepted cause. It is believed that injury to the bone may result in an intraosseous hematoma, which fails to organize and instead undergoes liquefaction, leading to cavity formation and localized bone resorption.

Several other mechanisms have been proposed, including subperiosteal hemorrhage triggering osteoclastic activity, disturbances in bone metabolism, ischemia, chronic low-grade infection, and altered local bone growth. These theories suggest that TBC likely results from a combination of biological and mechanical factors rather than a single causative event.

Clinically, TBC is usually asymptomatic, though in some cases, patients may report mild pain or swelling. Radiographically, it appears as a unilocular radiolucency with a scalloped margin, often extending between the roots of teeth. Diagnosis is confirmed through surgical exploration, where an empty cavity or serous fluid is found. Histologically, the lesion lacks epithelial lining and typically shows fibrous connective tissue with occasional hemorrhagic elements or giant cells.

Management involves surgical curettage of the cavity to stimulate bleeding and bone regeneration. Most lesions heal completely without complications, and recurrence is rare. Radiographic follow-up is essential to ensure proper healing.

REFERENCES

1. Razmara F, Ghoncheh Z, Shabankare G. Traumatic bone cyst of mandible: a case series. J Med Case Rep., 2019; 13(1): 300.
2. Kumar LKS, Kurien N, Thaha KA. Traumatic Bone Cyst of Mandible. J Maxillofac Oral Surg, 2010; 14(2): 466–9.
3. Xanthinaki AA, Choupis KI, Tosios K, et al. Traumatic bone cyst of the mandible of possible iatrogenic origin: a case report and brief review of the literature. Head Face Med, 2006; 2: 40.
4. Dincer O, Kose TE, Cankaya AB, Aybar B. Traumatic bone cyst mimicking radicular cyst. BMJ Case Rep., 2012; 2012: bcr2012007316.

5. Martins-Filho PR, Santos Tde S, Araújo VL, et al. Traumatic bone cyst of the mandible: a review of 26 cases. Braz J Otorhinolaryngol, 2012; 78: 16–21.
6. Suei Y, Taguchi A, Tanimoto K. Simple bone cyst of the jaws: evaluation of treatment outcome by review of 132 cases. J Oral Maxillofac Surg, 2007; 65(5): 918–923
7. Dhopte A, Tandon P, Shenoy M, Mustilwar R, Abdul NS, Bagde H, et al. Traumatic bone cyst of the anterior mandibular region: a case report. Cureus, 2022 Nov 10; 14(11): e31315.
8. Peter J, Sreenivas R, Thomas P, Mathew DG. Traumatic bone cyst presenting as an asymptomatic radiolucent mandibular lesion: a case report. J Oral Biomed Sci., 2023; 2.
9. Vale DS, Lopes HB, Freitas GP, Araujo NP, Rosa FG, Nunes Júnior F. Atypical traumatic bone cyst involving impacted lower third molar: report of case. RGO Rev Gaúch Odontol, 2023; 71: e20230011.
10. Zeno KG, Saab WZ, Al Matny L, Haidar R, Ghafari JG. Long term self-resolution of a mandibular traumatic bone cyst: a patient report. J Oral Med Oral Surg Oral Pathol Oral Radiol, 2024; 10(2): 134–140.
11. de Camargo RA, Marzliak JA, Felizardo PR, Broca S, Penteado MBR. Surgical management of traumatic bone cyst utilizing the progressive platelet-rich fibrin protocol. J Surg Surg Res., 2024; 10(2): 27–30.
12. Thelekkat Y, Basheer SA. Traumatic bone cyst in the mandibular ramus—a diagnostic dilemma. Niger J Clin Pract, 2022; 25(8): 1230–1233.
13. Jose T, Mathew T, Oguntade A, Tripathy R, Iqbal A. Aneurysmal bone cyst presenting incidentally as a traumatic foot injury: case report. The Physician, 2023; 8(1).
14. Zeno KG, Saab WZ, Al Matny L, Haidar R, Ghafari JG. Long term self-resolution of a mandibular traumatic bone cyst: a patient report. J Oral Med Oral Surg Oral Pathol Oral Radiol, 2024; 10(2): 134–140.
15. Vale DS, Lopes HB, Freitas GP, Araujo NP, Rosa FG, Nunes Júnior F. Atypical traumatic bone cyst involving impacted lower third molar: report of case. RGO Rev Gaúch Odontol, 2023; 71: e20230011.
16. Peter J, Sreenivas R, Thomas P, Mathew DG. Traumatic bone cyst presenting as an asymptomatic radiolucent mandibular lesion: a case report. J Oral Biomed Sci., 2023; 2.