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Chronic Osteomyelitis of the Right Posterior Mandible in a 70-Year-Old Male Managed by Segmental Resection and Immediate Reconstruction with a Reconstruction Plate: A Case Report

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Abstract:
Background
Chronic osteomyelitis of the jaws is an uncommon but challenging inflammatory condition characterized by persistent infection, bone destruction, sequestration, and fibrosis. Advanced cases may require radical surgical intervention when conservative management fails.

Case Presentation
A 70-year-old male presented with pain and tenderness in the right mandibular posterior region for three months. Clinical examination revealed vestibular obliteration and mobility of a mandibular segment extending from the 43 to 48 regions. Computed tomography of Face demonstrated extensive bony destruction involving the right posterior mandible. Incisional biopsy established a diagnosis of chronic osteomyelitis. Considering the extent of disease and segment mobility, segmental mandibulectomy was performed followed by immediate reconstruction using a titanium reconstruction plate.

Outcome
Postoperative healing was uneventful with satisfactory facial contour and mandibular continuity. Histopathological examination of the resected specimen confirmed chronic osteomyelitis.

Conclusion
Segmental resection with immediate reconstruction remains a reliable treatment modality for advanced chronic osteomyelitis associated with extensive mandibular destruction and pathological mobility.

Keywords*: Chronic osteomyelitis, mandible, segmental resection, reconstruction plate, mandibular reconstruction, case report*

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I. Introduction:

Chronic osteomyelitis is a persistent inflammatory disease of bone caused by microbial infection, compromised vascularity, and host-related factors. The mandible is more frequently affected than the maxilla owing to its relatively poor blood supply. Clinical manifestations include pain, swelling, fistula formation, sequestration, trismus, and pathological mobility of bone segments. Management ranges from prolonged antimicrobial therapy and sequestrectomy to radical resection in advanced cases. Early diagnosis and appropriate surgical intervention are crucial to prevent disease progression and restore function. [1,2]

Patient Information:
A 70-year-old male presented to the OPD of our department of Oral and Maxillofacial Surgery with chief complaint of pain and numbness in right lower back teeth region for 3 months.

Medical History:
Patient had a history of Diabetes Mellitus from past 10years.

Dental History
History of chronic dental infection in the mandibular posterior region.

Clinical Findings:
Extraoral examination revealed mild facial asymmetry over the right mandibular body region.

Intraoral examination showed:

1.Vestibular obliteration in the right mandibular posterior region.

2.Mobility of a mandibular segment extending from tooth 43 to 48 region.

3.Tenderness on palpation.

4.Generalized attrition.

Diagnostic Assessment:
Radiographic Findings
CT face imaging demonstrated:

- Extensive osteolytic destruction involving the right posterior body and angle of the mandible region.
- Cortical disruption and loss of normal trabecular architecture.

Histopathological Findings:
Incisional biopsy was performed under local anaesthesia.

Microscopic examination revealed:

Chronic inflammatory cell infiltrate predominantly composed of lymphocytes and plasma cells.

Areas of necrotic bone.

Fibrosis of surrounding connective tissue.

The findings were consistent with chronic osteomyelitis.

Therapeutic Intervention:
Considering:

- Extensive bony destruction,
- Segment mobility,
- Chronic infection,
- Poor prognosis for conservative management,
- A decision was made to perform segmental resection of the affected mandible.

Surgical Procedure:
Surgery was performed under general anaesthesia.

Intraoral vestibular incision was used.

Segmental mandibulectomy involving the diseased mandibular segment was completed.

All infected and necrotic bone was removed.

Immediate reconstruction was carried out using a titanium reconstruction plate to restore mandibular continuity.

Layered wound closure was performed and a suction drain was placed.

Follow-Up and Outcomes

- Postoperative follow-up revealed:
- Adequate wound healing.
- Resolution of pain and tenderness.
- Restoration of mandibular continuity.
- No immediate postoperative complications.
- Improved functional outcome.

Long-term surveillance was advised to monitor recurrence and reconstruction plate stability.

II. Discussion:

Chronic osteomyelitis of the mandible is a difficult condition to manage due to impaired vascularity and persistent infection. Conservative measures such as antibiotics, decortication, and sequestrectomy may be effective in early disease. However, advanced disease characterized by extensive bone destruction and pathological mobility often necessitates radical resection. [3]

Segmental resection eliminates the infected bone entirely and reduces the likelihood of recurrence. Immediate reconstruction with a titanium reconstruction plate restores mandibular continuity, maintains facial contour, and facilitates future rehabilitation. Similar treatment approaches have demonstrated favorable outcomes in advanced mandibular osteomyelitis.[4, 5]

The present case highlights the importance of timely diagnosis and aggressive surgical management in patients presenting with extensive mandibular involvement and segment mobility.

Patient Perspective

The patient reported significant reduction in pain and improvement in oral function following surgery and expressed satisfaction with the treatment outcome.

Informed Consent

Written informed consent was obtained from the patient for treatment and publication of clinical data and images.

III. Conclusion:

Advanced chronic osteomyelitis of the mandible can result in extensive bone destruction and pathological mobility requiring radical surgical management. Segmental mandibulectomy followed by immediate reconstruction with a titanium reconstruction plate provided successful eradication of disease and restoration of mandibular continuity in the present case.

References:

[1]. Marx RE. Chronic osteomyelitis of the jaws. Oral Maxillofac Surg Clin North Am. 1991;3(2):367-381.
[2]. Topazian RG, Goldberg MH, Hupp JR. Oral and Maxillofacial Infections. 4th ed. Philadelphia: WB Saunders; 2002.
[3]. Baltensperger MM, Eyrich GK. Osteomyelitis of the Jaws. Berlin: Springer; 2009.
[4]. Mücke T, Mitchell DA, Wagenpfeil S, et al. Influence of different treatment modalities on the outcome of osteomyelitis of the jaw. Int J Oral Maxillofac Surg. 2011;40(8):858-863.
[5]. Obiechina AE, Arotiba JT, Fasola AO. Recurrent chronic osteomyelitis of the mandible treated by resection and reconstruction. Niger J Clin Pract. 2010;13(3):351-355.

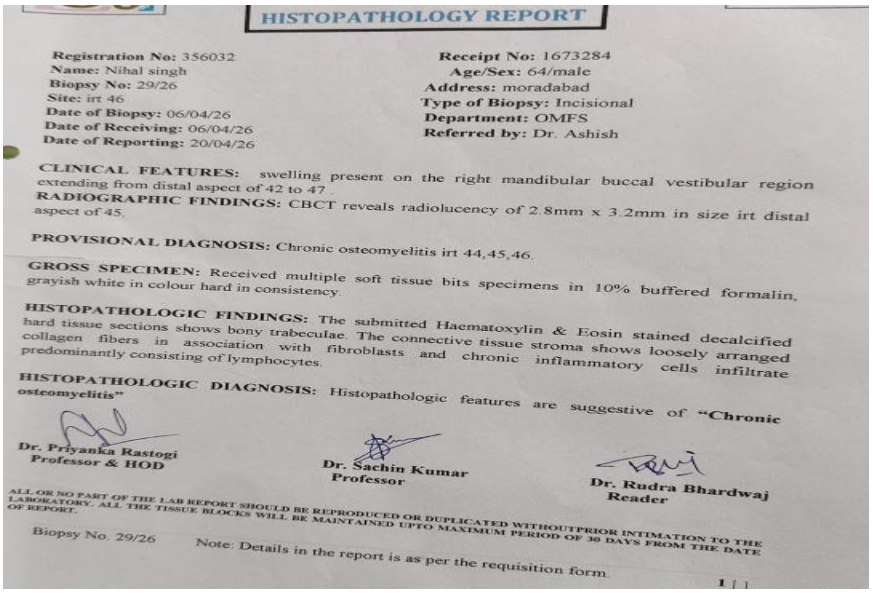
Figures:

A) Extraoral photograph showing diffuse swelling on right side cheek region.

B) Intraoral photograph showing generalized attrition

C) Vestibular obliteration at right posterior back teeth region extending from 43 to 48 region.

D) Ct face (axial section) showing buccolingual cortical plate disruption extending from 43 to 48 region.



HISTOPATHOLOGY REPORT

Registration No: 356032
Name: Nihal singh
Biopsy No: 29/26
Site: irt 46
Date of Biopsy: 06/04/26
Date of Receiving: 06/04/26
Date of Reporting: 20/04/26

Receipt No: 1673284
Age/Sex: 64/male
Address: moradabad
Type of Biopsy: Incisional
Department: OMFS
Referred by: Dr. Ashish

CLINICAL FEATURES: swelling present on the right mandibular buccal vestibular region extending from distal aspect of 42 to 47 .
RADIOGRAPHIC FINDINGS: CBCT reveals radiolucency of 2.8mm x 3.2mm in size irt distal aspect of 45.

PROVISIONAL DIAGNOSIS: Chronic osteomyelitis irt 44,45,46.

GROSS SPECIMEN: Received multiple soft tissue bits specimens in 10% buffered formalin, grayish white in colour hard in consistency.

HISTOPATHOLOGIC FINDINGS: The submitted Haematoxylin & Eosin stained decalcified hard tissue sections shows bony trabeculae. The connective tissue stroma shows loosely arranged collagen fibers in association with fibroblasts and chronic inflammatory cells infiltrate predominantly consisting of lymphocytes.

HISTOPATHOLOGIC DIAGNOSIS: Histopathologic features are suggestive of **"Chronic osteomyelitis"**

Dr. Priyanka Rastogi
Professor & HOD

Dr. Sachin Kumar
Professor

Dr. Rudra Bhardwaj
Reader

ALL OR NO PART OF THE LAB REPORT SHOULD BE REPRODUCED OR DUPLICATED WITHOUTPRIOR INTIMATION TO THE LABORATORY. ALL THE TISSUE BLOCKS WILL BE MAINTAINED UPTO MAXIMUM PERIOD OF 30 DAYS FROM THE DATE OF REPORT.

Biopsy No. 29/26 Note: Details in the report is as per the requisition form.

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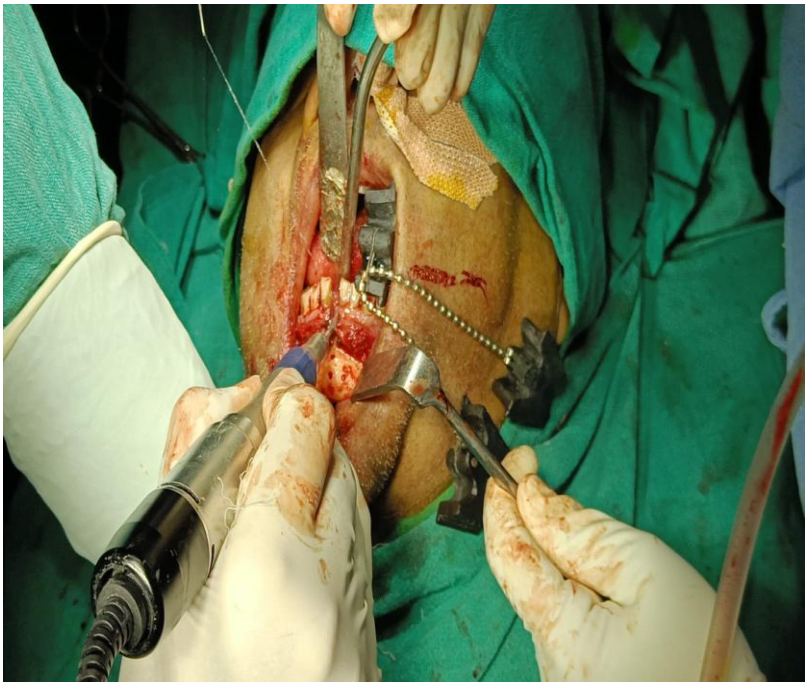
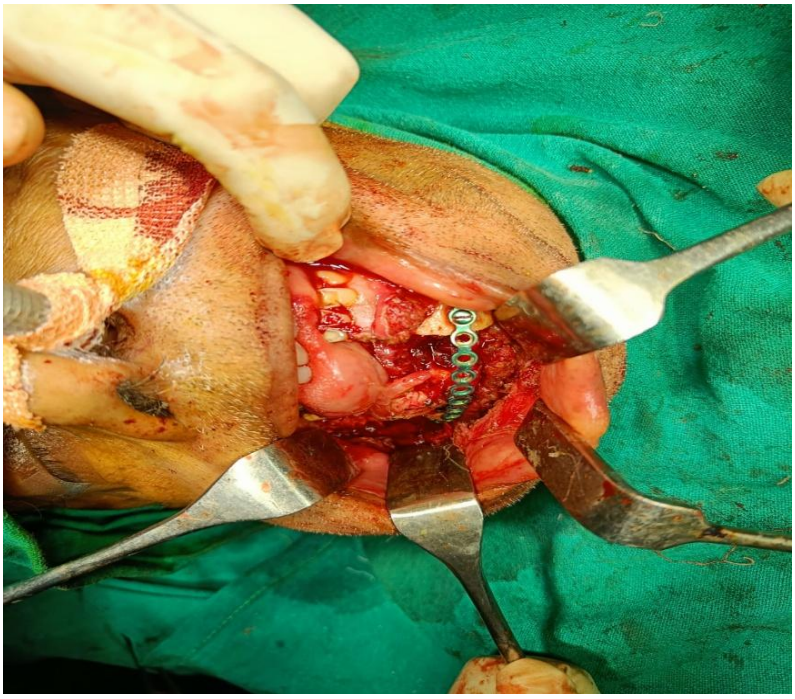
E) HISTOPATHOLOGY REPORT



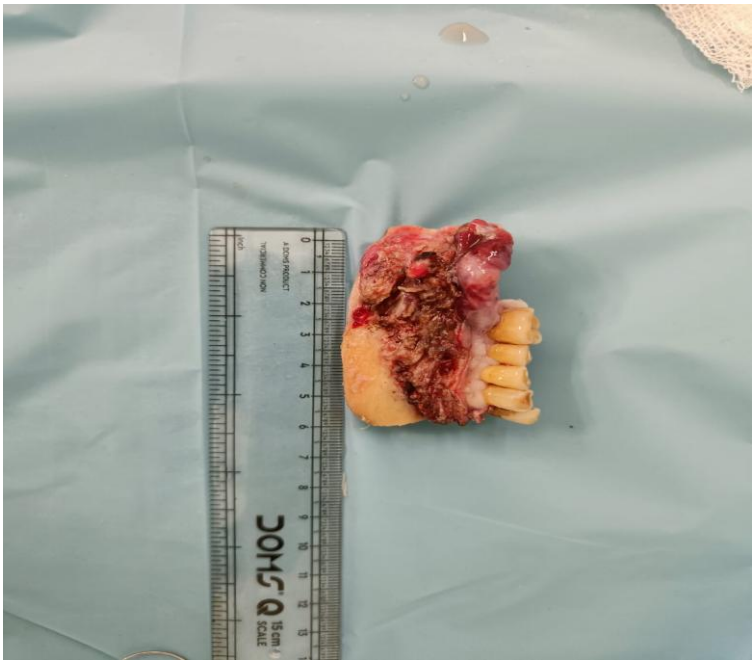
E) Photograph showing segmental osteotomy done with rotatory handpiece.

F) Photograph showing osteotomy further done with chisel and mallet for segmental resectioning.

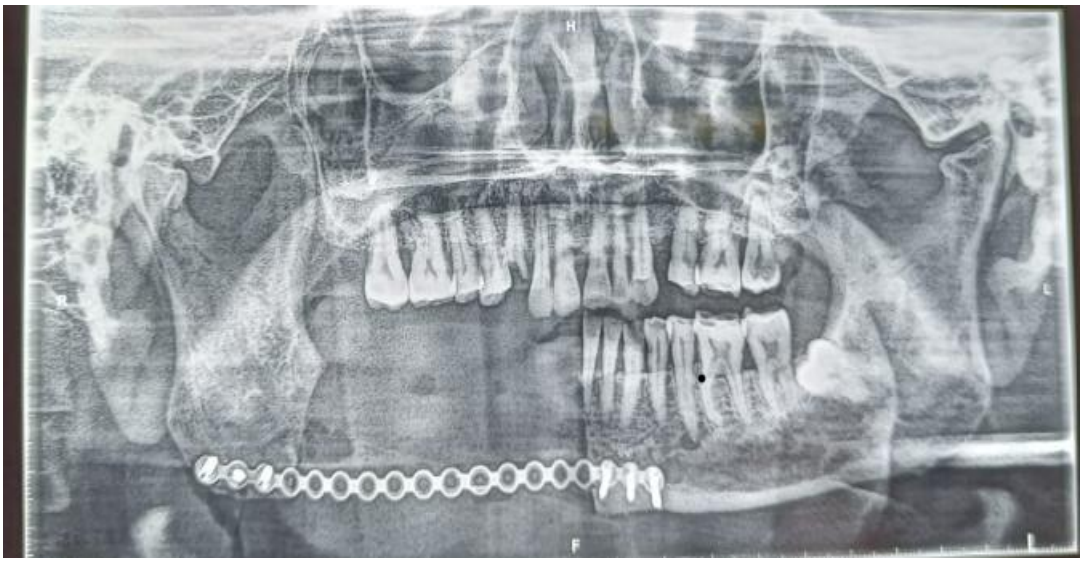
G) Post segmental resection from 42 to 48 region.



H) Reconstruction with titanium continuous plate post segmental resection of mandible.



I) Excised specimen.



J) Post operative OPG showing fixation of titanium continuous plate.