Intentional Replantation of a Mandibular Second Molar Following Iatrogenic Complications

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Clinical Presentation and Diagnosis

A 17-year-old female patient presented with secondary acute apical periodontitis associated with tenderness to palpation and percussion.

Pre-operative periapical radiograph obtained using the parallel technique, showing a large periapical radiolucency associated with tooth #37.

Treatment Planning and Surgical Rationale

Surgery was preferred because the fractured instrument was located apically and a foreign body (needle tip) had been extruded into the periapical lesion, making orthograde retrieval unlikely.

Prior to surgical intervention, coronal stabilization was achieved by removing the existing composite restoration and placing a fiber-reinforced composite build-up.

Following intentional extraction, extraoral apical resection was performed under continuous saline irrigation.

Retrograde Management

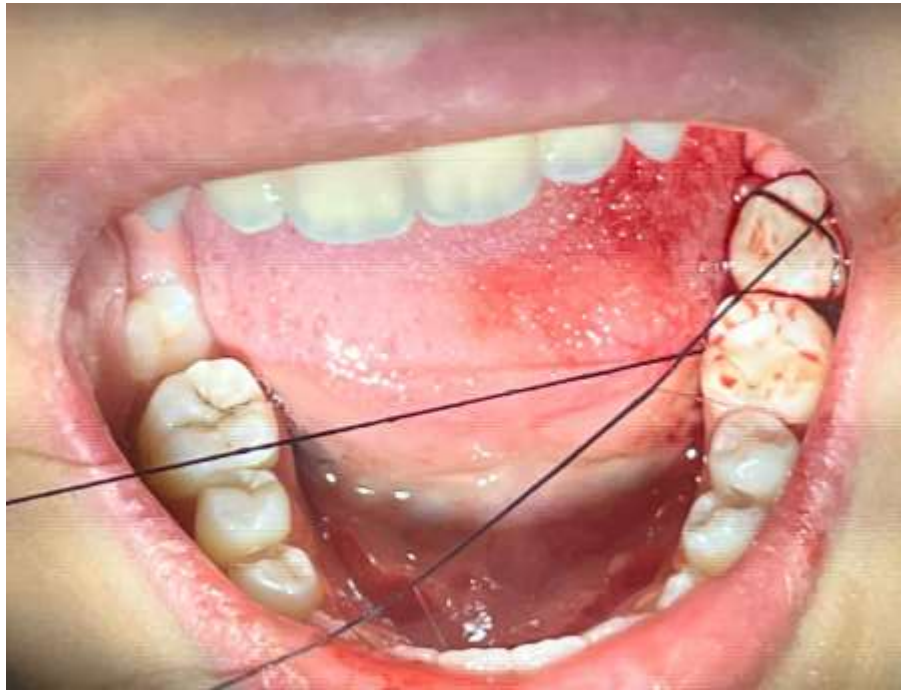
Prior to replantation, an extraoral retrograde cavity was prepared and sealed with a calcium silicate–based cement plug.

To preserve periodontal ligament vitality, extraoral manipulation time was kept to a minimum and the tooth was handled exclusively by the crown throughout the procedure.

Immediate Radiographic Assesment

Radiographs obtained immediately before replantation following socket curettage and immediately after replantation confirmed correct repositioning of the tooth within the socket and complete removal of the extruded foreign body.

Post-replantation Stabilization



Following replantation, stabilization was achieved with sutures rather than a rigid splint to allow physiologic tooth mobility and reduce the risk of ankylosis.

Clinical and Radiographic Outcome

At the 3-month follow-up, the tooth was asymptomatic, with no tenderness to percussion or palpation and no pathological mobility on clinical examination. The follow-up radiograph demonstrated significant periapical bone regeneration, re-establishment of the lamina dura, and a marked reduction of the periapical radiolucency, consistent with ongoing healing.