

Use of “Red-dot” System in Diagnosing Unique Fractures by Different Views

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The mandible is the largest and only movable facial bone. It begins as two separate bones and unites anteriorly, when the child approaches 1-year of the age.¹ Its unique shape causes it to fracture easily, typically in more than one place.² Based on these features, radiographs are taken as initial aid for diagnosis of fractures especially in resource challenged management system.

A 34-year male patient reported to the Department of Oral Medicine and Radiology with a history of trauma in road traffic accident. On extra-oral examination, abrasion and swelling on left temporomandibular joint and chin region with limited mouth opening was noted with tenderness on palpation. On intraoral examination

(Figure 1), active bleeding with clinically missing teeth was noted in the lower anterior region from 32 to 43 and sutures were placed. The sublingual hematoma was also observed in the anterior region. Panoramic radiograph and mandibular anterior topographic occlusal views were taken keeping “ring bone rule” in mind. Panoramic



Figure 1: Intraorally clinically missing teeth from 32 to 43 with sublingual hematoma



Figure 2: Panoramic view showing empty sockets in relation to lower anterior mandible region from 32 to 42, and root remnant in socket of 43 with no other mandibular fracture



Figure 3: Topographic occlusal view showing a partial radiolucent line extending from alveolar crest of 41 region running obliquely downwards and posteriorly to lower border of mandible in 45 region suggestive of lingual cortical plate fracture

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Figure 4: True occlusal radiograph showed two separate fracture lines in anterior mandibular region suggesting two separate buccal and lingual cortical plates fractures

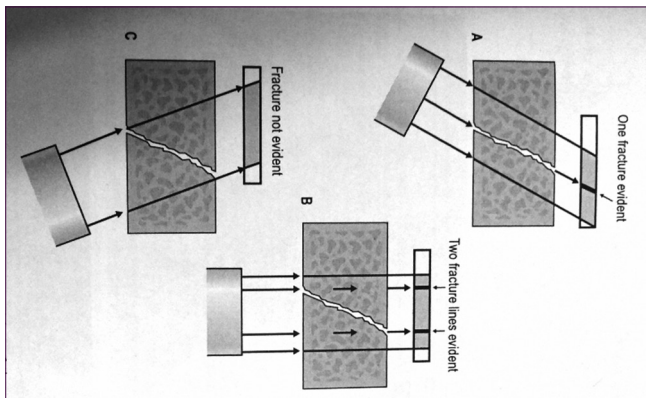


Figure 5: Diagrammatic illustration of how position of film and X-ray tube head in relation to a fracture can affect the final image

view (Figure 2) showed empty sockets in relation to lower anterior mandible region from 32 to 42, and root remnant in socket of 43 with no other mandibular

fracture. Topographic Occlusal view (Figure 3) showed a partial radiolucent line with progressive increase in width extending from alveolar crest of 41 region running obliquely downward and posteriorly to lower border of mandible in 45 region suggestive of lingual cortical plate fracture. As unexpectedly, no fracture was observed in the panoramic radiograph, according to Red-dot diagnosis, an anterior mandibular true occlusal radiograph (Figure 4) was taken to confirm displacement of fracture segment lingually.³ Surprisingly, true occlusal radiograph showed two separate fracture lines in the anterior mandibular region. One fracture line was running from 41 region extending lingually with displacement of lingual cortical plate in 45 region as was shown in topographic occlusal radiograph and other fracture line was seen running from 32 region extending facially with displacement of fracture segment in 42 region.

Points to Ponder

1. Because of limitation radiographic images (Figure 5) that at least two views, at different angulations, are required.
2. If displacement and separation are minimal, there may be no radiographic evidence of a fracture at all.⁴

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