A 19-year-old boy with intra-oral discharging sinus for 28 days

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Presentation of the case

Dr. Panna Das (MS Resident): A 19 years old boy came to the OPD of Conservative Dentistry & Endodontics Department of BSMMU with the complaint of discharging sinus & dislodgement of full veneer crown. He reported previous traumatic history of teeth and treatment from the local doctor. The extraoral examination found no facial swelling and palpable lymph nodes. On intraoral examination, there is a sinus present between the right upper central incisor & lateral incisor. Coronal restoration present on the palatal surface right upper central incisor was smaller than the left incisor due to crown preparation. Palate, tongue, and the floor of mouth buccal and palatal mucosa appeared normal. His oral hygiene condition was average. There was, however, the presence of mild plaque and calculus. Thermal and electrical vitality tests were performed for right maxillary central and lateral incisors, which did not elicit responses in the latter central incisor teeth, but vital lateral incisor. On palpation, mild tenderness was there in the labial mucosa adjacent to the right upper central incisor tooth. All anterior maxillary teeth were painless on percussion testing except the right upper central incisor tooth, which was tender on percussion.

Radiological findings

Dr. Mozammal Hossain (Associate Professor): Coronal restoration involving pulp chamber, large periapical lesion with bone loss, and around the root of the left central incisor and root resorption was also present. There was the widening of periodontal ligament and interrupted lamina dura.

Provisional diagnosis

Chronic periapical periodontitis with discharging sinus on upper right central incisor tooth.

Differential diagnosis

Periodontal abscess

Dr. Das: Periodontal abscesses often appear as focal or diffuse and visible as red, fluctuant swelling of the gingiva.[1] It is also extremely tender to palpation. They have a communication with a periodontal pocket from which pus can be readily expressed after probing. However, this condition was not seen in the present case and was discarded from the provisional diagnosis.

Gingival abscess

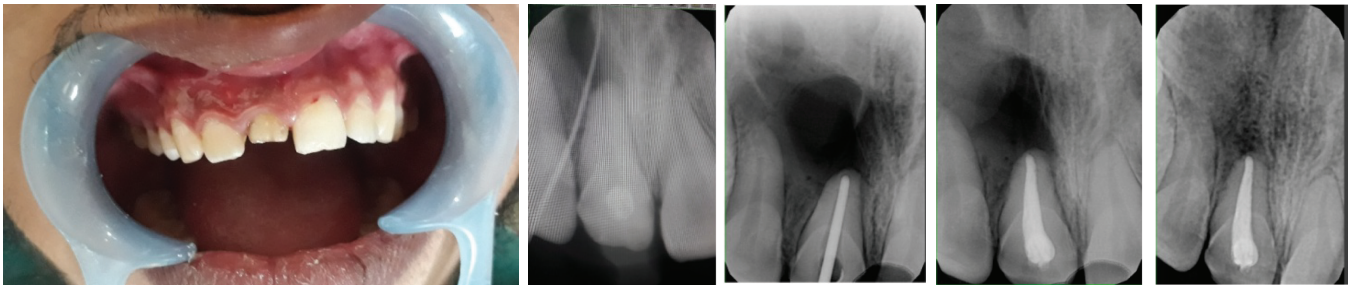
Dr. Das: It occurs due to the presence of a foreign body between gum and tooth tissue.[2] So, the conditions are discarded from provisional diagnosis.

Radicular cyst

Dr. Das: Histopathological examination was needed to confirm the diagnosis.[3]

Treatment procedure

The whole treatment procedure was explained to the patient and consent was taken. After mouth preparation, 25 no gutta-percha was inserted through the sinus tract and a radiograph was taken to identify the sinus tract. The temporary restoration was removed to establish a proper access cavity. The canal orifice was explored by DG-16. The access cavity was washed with 0.9% normal saline. The patency of the canal was checked by the patency file (Dentsply). After establishing the Glyde path, the working length was determined as 18 mm. The root canal was derided up to no 80 k file. During the use of each instrument, the canal was irrigated with 2.5% sodium hypochlorite (NaOCl) and then washed with 0.9% normal saline. Irrigation activation was done by gutta-percha pumping, followed by 2.5% NaOCl, washed with 0.9% normal saline, then with 17% EDTA for 1 minute, and washed with 0.9% normal saline.



A B C D E

Figure - 1 : Clinical Procedure (Preoperative photograph of the tooth (A), Initial x-ray indicates a sinus tract (B), Gutta percha point was inserted to the root canal to determine the working length (C), Obturation of the root canal (D), Follow-up x-ray (E)

The canal was dried by corresponding 80 no sterile paper points. Calcium hydroxide paste (Ultracal D) was placed 2mm short of working length, and the access cavity was closed with zinc oxide eugenol paste. The patient was recalled after seven days. Then calcium hydroxide was removed by Hedstrom file and washed with normal saline. Again, debridement and irrigation were repeated in the same way. Afterward, the canal was soaked with 2% chlorhexidine for 2 min. The canal was dried with sterile paper points. Master cone fit and tug back were checked. Then the canal was obturated with corresponding gutta-percha with sealer (sealapex, Kerr) by lateral condensation technique. The access cavity was restored with permanent restoration by composite resin, and the patient was advised for follow-up at 3, 6, 9, and 12 months intervals.

Discussion

Regarding etiology and incidence

Dr Md Ali Asgor Moral (Professor): Intraoral discharging sinus is one of the main manifestations of the presence of infected pulpal tissue due to dental trauma or endodontic treatment failure. Periapical tissue involvement occurs due to microbial assumptions, and they are by-products that infiltrate the peri radicular tissues and activate the host's immune reaction. Peri radicular lesion is not self-limiting, although periradicular tissue has defensive action. These lesions are usually found during routine radiographic examinations, followed by swelling and discharging sinus. Periapical lesions are mostly classified as radicular cysts, dental granulomas, or abscesses. Incidences of radicular cysts in these lesions have been reported to be in the range of 6-55%. Moreover, the prevalence of periapical granuloma varies from 9.3 to 87.1%, and periapical abscesses from 28.7 to 70.7%. It seems that when the radiographic size of the lesion becomes larger than 200 mm2, the occurrence of the cysts is more than 92%.[4]

Regarding treatment procedure

Dr. Das: The large periapical lesion can be treated by non-surgical endodontic treatment with or without peripheral ostectomy and extraction of the tooth. Effective chemo-mechanical preparation minimizes the microbial load from the pulpal system.[5] When the lesion has direct communication with the root canal system, the non-surgical approach would possess a better outcome, followed by pus drainage and access cavity preparation.[6] Therefore, proper anatomical knowledge and preoperative radiograph are important factors in achieving desirable outcomes. The following case report describes nonsurgical management of a large maxillary cyst-like periapical lesion involving central incisors.

Various treatment options for large periradicular lesions may range from root canal therapy to surgical interventions.[4,7] Adequate cleaning of the root canal system and minimizing microbial load are essential for achieving the desired outcome. Previous studies have indicated that nonsurgical RCT should be done at first which, according to reports, has shown that 42-74% of these lesions healed after RCT.[8-11] However, there is controversy about the differences between the prognosis of conventional RCT of large and small lesions.[9,11] Manual irrigation technique was used by lateral vented irrigation needle. Ultrasonic irrigation was more effective than manual irrigation. But the manual irrigation technique was more convenient. An antibacterial calcium hydroxide-based paste dressing was placed in this case. It is recommended that calcium hydroxide paste improve periapical repair and eliminate residual microorganisms handling the inflammation, stimulating calcification, nullifying acidic products of osteoclasts, and endotoxin neutralization.[12-15] Moreover, it has been shown that calcium hydroxide dressing strongly promotes periapical healing, notably in young adults.[16-17] In agreement with these studies, periapical bone healing occurred three months after endodontic treatment in this case and continued over the next nine months. Radiographic evaluations demonstrated bone regeneration according to increasing density, trabecular reconstruction, and lamina dura forming. Permanent restoration after endodontic treatment affects the prognosis and sufficient coronal restoration should be placed as soon as possible.[18,19] In this case, immediately after obturation, composite restorations on the tooth were placed.

Regarding invasive nonsurgical treatment

Dr Shuvendu Saha (MS Resident): The number of visits for RCT is also one of the most controversial topics in endodontics.[7,20] This case as a two-visit treatment confirms that two-visit RCT can result in successful healing. The benefits of less invasive nonsurgical treatment of extensive periapical lesions include minimum psychological trauma and are more acceptable for patients. It seems that the periapical lesion was completely resolved due to rich blood supply, ample undifferentiated cells, and drainage through the lymphatic system. Thus, the lesion was rehabilitated to eliminate the causative factors by endodontic therapy and the healing potential of periradicular tissues.

Follow-up

In the present case, an extensive periradicular lesion with discharging sinus was treated with calcium hydroxide intracanal paste and two-visit root canal therapy. This confirms that large inflammatory periapical lesions can heal approvingly by nonsurgical therapy.

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