

## Case Report

# Management of Extra Oral Sinus with Non-Surgical Endodontic intervention

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### ABSTRACT:

Extra oral sinus tracts of endodontic origin clinically, might be mistaken with a variety of illnesses. Differential diagnosis of this clinical problem is critical in delivering proper clinical care because misdiagnosis may result in healing failure or needless medications. As a result, every cutaneous sinus tract involving the face or neck should be investigated for dental causes. Its diagnosis is not usually straightforward unless the treating clinician considers the possibility of a dental etiology. Once the accurate diagnosis has been made, definitive treatment, such as root canal therapy and tooth extraction, to remove the cause of infection is simple and successful.

**KEYWORDS:** Chronic periapical abscess, Extra oral draining sinus, Root canal therapy, Calcium hydroxide.

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### INTRODUCTION:

The chronic apical abscess is an inflammation in the periapical area that eventually progresses and forms pus at the apices of the root. The sinus tract is a common finding since this lesion is symptomless. It is an indication of persistent infections of the dental tissue that allow infections and pus to drain.<sup>[1,2]</sup> The sinus tract follows the path of least resistance, which can appear either intraoral or extraoral. Factors that can determine the position of the sinus tract are the thickness of alveolar bone and overlying soft tissue, distance from the root apex, outer cortical bone, and shape of the bone.<sup>[3,4,5,6]</sup> The vestibule of the mouth along the buccal alveolar plate is the most common site for the emergence of the sinus.<sup>[7]</sup>

Commonly, extra oral sinuses appear in various locations on the face.<sup>[8]</sup> Because of their resemblance to cutaneous lesions, we commonly encounter misdiagnosis and mismanagement. As this

lesion appears on the skin's surface, it can be misdiagnosed due to absence of the dental symptoms for a variety of disorders, including topical cutaneous infections, growth hair, osteomyelitis, tuberculosis, actinomycosis, and congenital midline sinus of the upper lip.<sup>[8,9]</sup>

### CASE REPORT:

A healthy young male patient aged 21 years old visited the Conservative and Endodontics department with a chief complaint of extraoral draining lesion located on the right side of the chin. On extraoral examination the lesion appeared to be of the size 2x2 cm located on the right side of the chin. He was very anxious and wanted to know the cause of the skin lesion present on his right cheek. During history taking, the patient revealed that the lesion has been present for 2 months, intermittently appearing and disappearing. Like any other disease that appeared on the skin would be treated, this patient was also treated by a general

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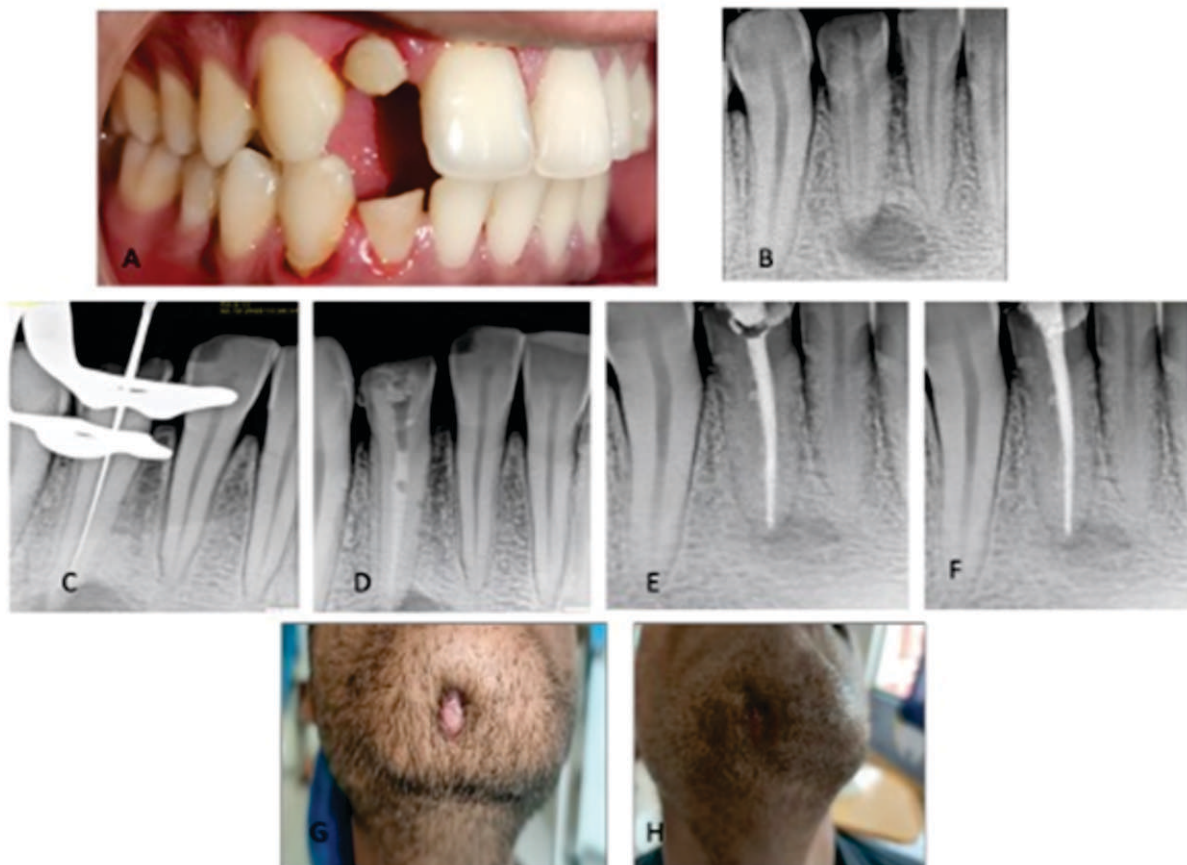
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physician for several weeks with antibiotics. The type of pain was intermittent in nature; there was no history of night pain, and continuously, there was draining pus through the lesion. During the examination, a gutta percha of 25.4% was used to trace the sinus tract, which revealed that the culprit tooth was the lower right lateral incisor. While performing percussion tests, the tooth was slightly tender and painful, unresponsive to thermal and electric pulp vitality tests. After clinical and radiographic examination, a final diagnosis of periapical abscess and extraoral sinus tract associated with the lower right lateral incisor tooth was made.

Informed consent was obtained from the patient, after that, the tooth was root canal treated. 15 no. (Mani) K file was used, and two canals were negotiated. Working length was determined using an apex locator and a radiograph. Irrigation was done with saline coming out of extra oral sinus confirming the lesion was in the sinus tract with an odontogenic origin. As saline was coming out, extra orally chlorhexidine was preferred as an irrigant during cleaning and shaping of the canal due to the risk of apical extrusion

of sodium hypochlorite (NaOCL) solution. Master apical file size of 20.4% was achieved using NeoEndo Flex files. A paper point of 20.4% to dry the canal, and intracanal calcium hydroxide was given for one week. After one week, calcium hydroxide was removed, and irrigation was done with NaOCL, which was left in the canal for 15 minutes to avoid extrusion that could occur due to irrigation. The canal was irrigated with saline, and the final rinse was carried out with chlorhexidine. To ensure complete disinfection, chlorhexidine was left in the canal for 10 minutes. The canal was dried and obturated with a single cone obturation technique using a bioceramic sealer. This was followed by temporary dressing. In third visit after removing the temporary dressing, Resin modified glass ionomer cement (RMGIC) followed by composite was used as a permanent restoration. At the 12-months follow up, clinically on the face area healing of the extra oral sinus was evident with nominal scarring. During radiographic examination after 1 year, healing of the periapical lesion was evident as shown in Figure 1.



**Figure 1 : Management of Extra Oral Sinus tract with NSET Figure Legend -**

A. Preoperative clinical photo; B. Preoperative intraoral periapical radiograph; C. Radiographic working length determination; D. Calcium hydroxide placement; E. Post obturation radiograph; F. 12 weeks follow up radiograph; G. Pre operative extraoral radiograph; H. Healing of extraoral clinical photo showing extraoral healing

**DISCUSSION:**

Extra oral sinus tract is usually misdiagnosed, the reason being they mimic the cutaneous skin diseases. When diagnosing a discharging lesion in the region of the face or neck, a dental etiology needs to be considered as the most important factor.<sup>[10]</sup> Etiology for these lesion can be dental trauma, deep dentinal caries, periodontal problems, inadequate restorations, infection of the periapical area.<sup>[11]</sup> The recurring condition slowing advances through the alveolar bone, along the course of least resistance until it passes through the cortical plate of the jaws and produces a subperiosteal abscess.<sup>[12]</sup> When the apices of the teeth in the maxillary region has superior muscle attachments, and in the mandibular region has inferior muscle attachments there are far more probable chances of cutaneous sinus tract to occur.<sup>[13]</sup> There are 80% chances of draining mandibular abscess onto submandibular or chin region. Treatment modalities for an extra-oral sinus tract ranges from root canal therapy, endodontic microsurgery and extraction. As proven by the literature, non-surgical root canal therapy is the treatment of choice for the management of extra-oral sinus tract due to its non-invasive nature.<sup>[14]</sup> A study conducted by Bodner et al evaluated the cosmetic results after treatment of extra oral sinus tracts<sup>[15]</sup>. 70% of the cases evaluated gave satisfactory results after non- surgical root canal therapy. Bradford et al also concluded that spontaneous closure of sinus tract should be expected after root canal therapy favoring this treatment modality<sup>[16]</sup>.

**CONCLUSION:**

The extraoral sinus healed significantly, indicating that root canal therapy with antibacterial irrigants and after drying of the root canal placement of intracanal medicaments protocol is the preferred therapy in these cases. Initially, surgical intervention is not indicated of the involved teeth. Clinical observations indicate a reduction in inflammation and discharge, with the sinus gradually closing. The patient reported a decrease in pain and discomfort. Continued adherence to the prescribed treatment regimen and regular follow-up visits has been instrumental in achieving these positive outcomes. Overall, the prognosis for complete healing is favorable.

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**Conflicts of Interest**

There are no conflicts of interest.

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