Case Report

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# Approach To Dorsal Nasal Sinus: A Rare Case Report

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## Abstract

Congenital midline dorsal nasal sinus is a rare clinical presentation in our day today clinical practice. Complete surgical excision can cure the patient. We must be careful while taking decision regarding its surgical management as it may have an intracranial extension and neurosurgical consultation and craniotomy may be required. Here we are discussing our case with the comprehensive approach and review of available literature.

**Keywords:** Dorsal nasal sinus; Midline; Excision; Intracranial; Rare

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## Introduction

Usually midline dorsal nasal sinus is a sign of underlying dermoid cyst [1]. They have a unique embryological origin. Other midline nasal masses may be gliomas and encephaloceles which may have an intracranial connection [2,3].

The common differential diagnoses of a midline nasal mass may include inflammatory lesions, traumatic deformity, benign neoplasms, malignant neoplasms and congenital masses. The purpose of this case report is to discuss about the clinical presentation, pathogenesis, diagnosis and surgical management of this rare congenital anomaly.

## Case Report

A 23 years, young male patient presented to our out-patient department with history of an opening over dorsum of nose with tuft of hair in it since his childhood. He also complained of on and off white color discharge from that opening but there was no history of nasal obstruction. He had been operated in his childhood for the same complaint but did not get relief of his symptoms. On examination, there was a sinus tract of approx 1.5 cm x 0.5 cm size over dorsum of the nose, extending from the supratip region to mid-dorsum. White discharge (foul smelling cheesy material) could be expressed from the sinus opening. Surrounding skin was normal in colour and texture. There was no other apparent congenital anomaly. Anterior rhinoscopy findings were normal on both the sides. MRI was suggestive of a midline anterior nasal sinus tract with no intranasal and intracranial extension.

## Management

Surgical excision of the sinus tract was planned under local anaesthesia as there was no intracranial extension as suggested by MRI scan. Lidocaine HCl 2% and epinephrine 1: 100,000 injections were used to provide local anesthesia and vasoconstriction in the operative field. Methylene blue dye was injected in the sinus tract and metallic probe was passed in the sinus tract to guide the complete excision of the sinus tract. At first, an elliptical incision was given around the sinus tract opening and then it was extended towards the radix. The blind dilated end of sinus tract was reaching upto the nasal bones. It was filled with hair and cheesy foul smelling discharge. After complete excision, wound was irrigated with providone iodine solution and normal saline and closure was done using nylon 5-0. Excised sinus tract was sent for histopathological examination and it came out to be a dermoid sinus cyst. Patient was discharged about two hours after surgical procedure with advice of effective elevation of head for about 24 hours to avoid post operative edema and pain. Post operative recovery was uneventful and sutures were removed on post operative day five. Wound healed with good linear scar. There was no recurrence of symptoms for about 1 year of follow up (**Figures 1- 4**).

 

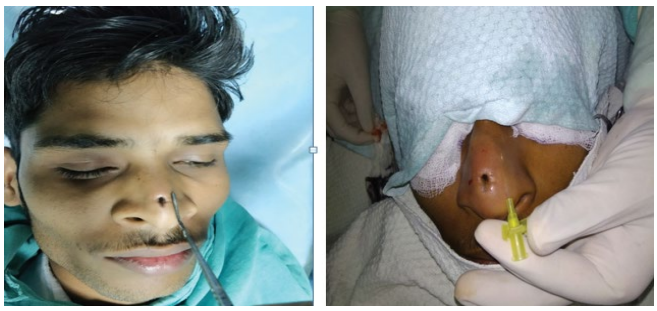

**Figure 1** Midline dorsal nasal sinus with tuft of hair in the floor of sinus.

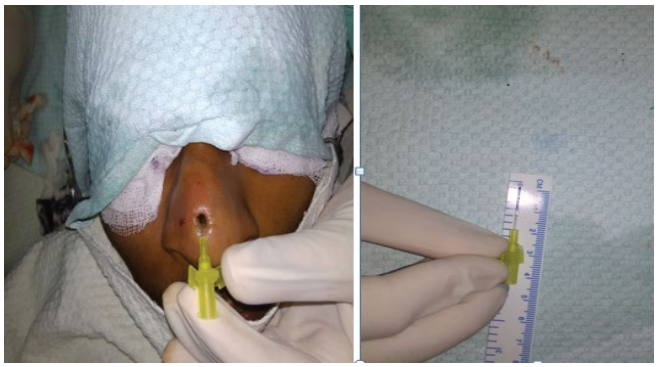

**Figure 2** Methylene blue dye was injected into the sinus tract with 24 no. pediatric intravenous cannula. Dorsal nasal sinus was about 1.5 cm long and cannula-tip could be easily passed.

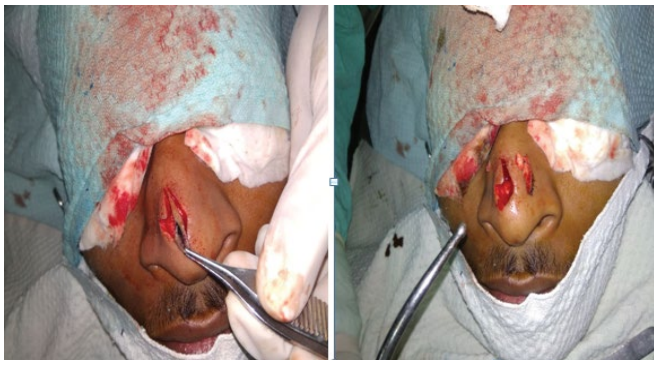

**Figure 3** En bloc Sinus tract excision.

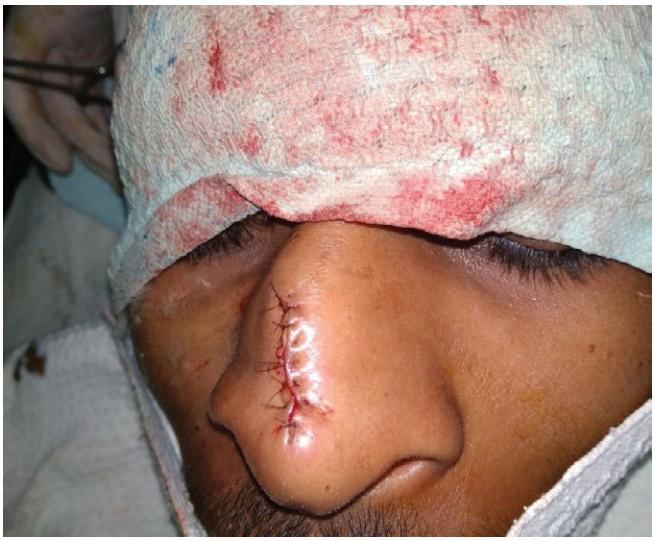

**Figure 4** Primary closure (immediate post-operative).

## Discussion

Nasal dermoid is a rare developmental anomaly of nose. Nasal dermoid can present as a cyst, a sinus, a fistula and may have intracranial extension [4]. Incidence is estimated at 1:20,000 to 1:40,000 births [2,3]. Though there are no syndromes associated with the development of midline nasal dermoid cyst, congenital anomalies have been reported in association with these lesions in up to 41% of cases [5]. These include other craniofacial abnormalities such as hypertelorism, cleft lip and palate, hemifacial microsomia and aural atresia, as well as defects including hydrocephalus, branchial sinuses, albinism, cardiac, gastrointestinal, genital and CNS anomalies. Pathogenesis involve incomplete obliteration of of neuroectoderm in developing frontonasal region [6]. Unlike epidermoid cysts, which are purely ectodermal, dermoid cysts contain both ectodermal and mesodermal elements, including adnexal structures and sebaceous glands [3,7]. In contrast to teratomas, they contain no endodermally derived structures. Midline dorsal nasal cyst may present as a nasal mass, pit or fistula located anywhere from the glabella to columella. Although the majority of lesions are superficial with no deep extension, a variably reported percentage may end blindly within the deeper midline structures of the nose or extend intracranially [1,5,7,8]. Hair protruding from the punctum is pathognomonic of dermoid cysts [5]. Rarely, multiple openings can be present and midline cysts may exist at more than one level on the nose and glabella [4]. They may secrete sebaceous material and can become intermittently inflamed or infected. Sequelae of infection can result in osteomyelitis, meningitis or cerebral abscess. These complications may also result from inadequate surgical excision [1]. Biopsy/ FNAC of such lesions with an intracranial connection can lead to meningitis or cerebrospinal fluid leak. Surgical strategy depends on the location and extent of the lesion, ranging from local excision via an open or endoscopic approach to a combined transcranial approaches. Surgical excision by midline vertical incision is the common approach [9-11]. Other approaches includes transverse incision, lateral rhinotomy and external rhinoplasty [1,5,7,8,12].

## Conclusion

Dorsal nasal sinus is a rare congenital anomaly of nose. A careful pre-operative evaluation is required to rule out any intracranial extension of the sinus tract. Complete surgical excision is the key to avoid the recurrence of symptoms.

## Conflict of Interest

Authors are declared that there is no conflict of interest.

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