

# Nasal Dermoid Sinus Cyst in a 17-Year-Old Female: A Case Report

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## Keywords

Midline nasal lesion ; dermoid sinus cyst ; congenital malformation ; magnetic resonance imaging ; case report.

## Abstract

### Introduction

Nasal dermoid sinus cysts are rare congenital anomalies that account for 1% of dermoid cysts. They typically present as midline nasal lesions and may involve intracranial structures.

### Observation

A 17-year-old female presented with a congenital midline nasal bridge nodule, which became noticeable during adolescence due to coarse dark hairs. Clinical examination revealed a well-defined nodule with a hyperpigmented patch inferiorly. MRI confirmed the absence of intracranial extension. The lesion was surgically excised, resulting in satisfactory cosmetic and functional outcomes.

### Conclusion

This case highlights the importance of including nasal dermoid sinus cysts in the differential diagnosis of midline nasal lesions. Imaging is essential for preoperative planning to assess intracranial involvement and guide safe surgical management.

## Introduction

Nasal dermoid sinus cysts are rare congenital anomalies arising from developmental defects during embryogenesis. They represent approximately 1% of all dermoid cysts and 3–12% of those in the head and neck region (1). Intracranial extension occurs in approximately 10–45% of cases and may lead to complications such as meningitis or cerebrospinal fluid leakage if inadequately managed (2, 3). Accurate diagnosis and preoperative imaging are crucial to guide treatment and prevent complications.

## Case Presentation

A 17-year-old female presented with a congenital nodule on the nasal bridge, stable since birth but with the recent emergence of coarse dark hairs. Her medical and developmental history was unremarkable.

Clinical examination showed a well-defined nodule on the midline of the nasal bridge with an overlying hyperpigmented patch containing a small tuft of dark hair (Figures 1A, 1B). There were no signs of infection, drainage, or associated congenital anomalies.

Magnetic resonance imaging (MRI) of the head and neck confirmed the absence of any communication with intracranial structures.

Although laser hair removal was offered as an initial treatment for the hyperpigmentation and coarse hairs, the patient opted for surgical excision. The lesion was removed through a direct approach, with satisfactory aesthetic results and an uneventful recovery.

## Discussion

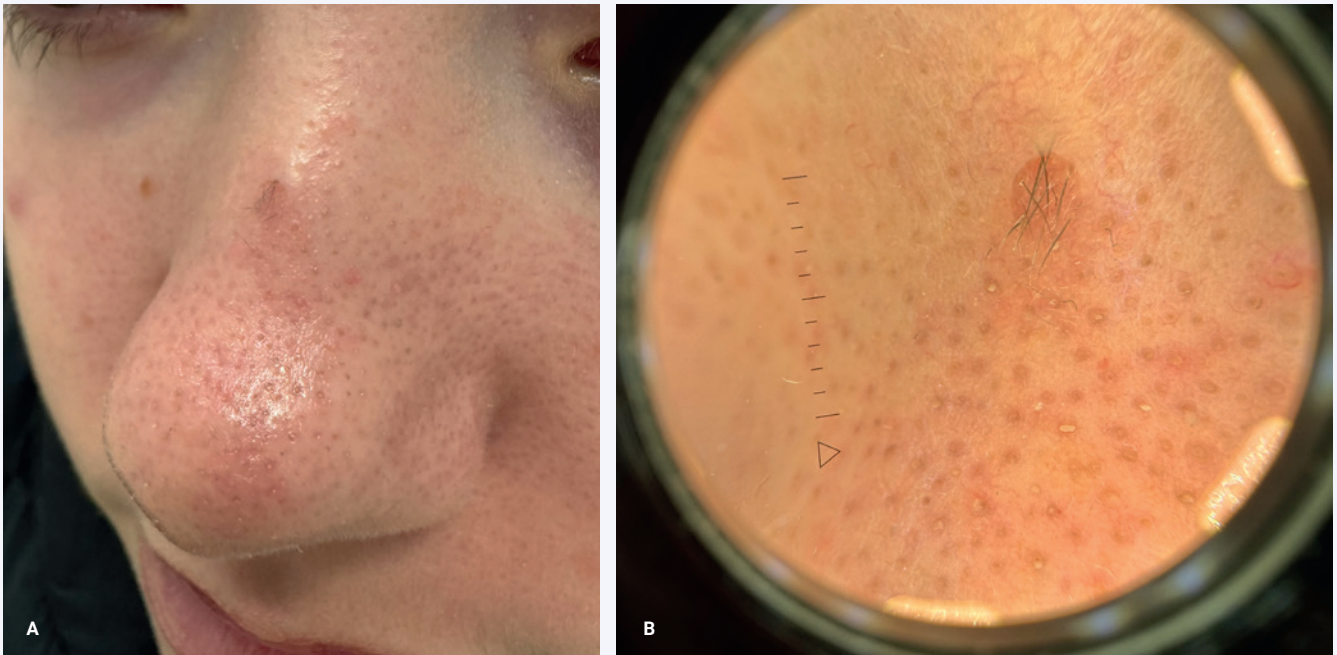
Nasal dermoid sinus cysts are rare congenital midline lesions that usually present during childhood or adolescence (4). Their pathogenesis is attributed to either incomplete regression of the dura mater or ectodermal trapping during embryological fusion of the nasal processes. Although uncommon, familial cases with an autosomal dominant inheritance pattern have been reported (3).

These cysts typically appear as firm, midline nasal dorsum masses, which may be pale, flesh-coloured, or erythematous. A characteristic midline punctum or pit may discharge sebaceous material or contain protruding hairs. Deeper lesions may extend to the cribriform plate and are often asymptomatic unless infected or draining. In up to 40% of cases, other congenital anomalies such as clefting or hydrocephalus may be present (5).

The differential diagnosis includes nasal glioma, encephalocele, epidermoid or sebaceous cyst, haemangiomas, and neuroglial heterotopia (1).

Advanced imaging is essential to exclude intracranial involvement. MRI, with its superior soft tissue resolution, is the preferred modality for detecting intracranial extension and visualizing tracts to the dura mater or cribriform plate. It is particularly valuable for presurgical planning, as it identifies any communication with critical intracranial structures (4). Computed tomography (CT) complements MRI by effectively detecting bony defects, such as foramen cecum erosion or widening, and together they provide detailed insights into skull base involvement (4, 5). This imaging is essential because surgical removal carries the risk of creating an open communication with the brain, potentially causing cerebrospinal fluid leakage or meningitis.

**FIGURE 1:** A well-defined nasal bridge nodule (A) with adjacent hyperpigmented macule containing dark hairs (B).



In paediatric cases where MRI or CT scans may not be feasible due to concerns about sedation or radiation, high-resolution ultrasound offers a valuable non-invasive alternative to assess lesion depth and vascularity (6). However, ultrasound has limitations in detecting deeper or intracranial extension.

Surgical excision remains the gold standard to prevent complications such as infection, recurrence, or intracranial extension (2). Lesions without intracranial involvement are treated with simple excision, achieved by direct incision or an open rhinoplasty approach, ensuring complete removal while minimizing cosmetic concerns. Lesions with intracranial involvement require a multidisciplinary approach. Surgeons may perform a craniotomy or a combined endoscopic and open procedure to safely remove the cyst and associated tracts.

Although our patient presented at the age of 17, most cases are diagnosed earlier. The optimal time for surgery is between 18–24

months of age, allowing for easier dissection and reducing the risks of cyst growth or infection. Laser therapy can be considered for cases where cosmetic issues such as residual hair or pigmentation are the primary concern. This is suitable for children from the age of 5–6 years, when they can better tolerate the procedure and cooperate with treatment.

## Conclusion

This case underscores the importance of considering nasal dermoid sinus cysts in the differential diagnosis of midline nasal lesions, especially when a hair tuft is present. Preoperative imaging, particularly MRI, is essential for assessing intracranial involvement. Early identification and surgical excision optimize outcomes and reduces complications, while laser therapy can be reserved for cosmetic refinements later in childhood.

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