Nasal Dermoid Fistula

An 8-year-old boy presented with a nonhealing skin pit and purulent drainage near the medial canthus of the right eye. The lesion developed after the excision of a cyst containing sebaceous material and hairs. A sinus with sebaceous secretion was also present at the nasal tip (**Figure 1**). Subsequent imaging (**Figure 2**) and management established the diagnosis of recurrent nasal dermoid fistula.

Nasal dermoid is a congenital lesion arising typically in the midline that presents as a cyst, sinus, or fistula located anywhere along the nasal pyramid between the glabella and the nasal tip. It derives from incomplete closure or trapped remnants of the dural diverticulum. This developmental structure connects the anterior cranial fossa to the nasal tip passing under the nasal bones, the so-called "prenasal space," during embryogenesis.[1,2] Nasal bones can be defective or displaced because of the dermoid.[3] Nasal location accounts for 1%-3% of all dermoids.

Nasal dermoids are usually diagnosed at birth or during early childhood. The presence of hairs or other adnexal structures, such as sebaceous and sweat glands, is typical of dermoids and helps differentiate them from epidermoid cysts. Soft tissue and bone deformities, recurrent local infection with purulent discharge, osteomyelitis, meningitis, and brain abscess are all possible presentations.[2] Remarkably, the formation of the nasal pyramid depends on fusion of the medial and lateral nasal processes and resorption of the dural diverticulum during embryogenesis. An anomaly of this development will cause defects in the nasal bones and paramedian fistulous openings. Both openings of the fistula can provide access to bacteria into the fistulous tract, causing purulent infection. There is no demonstration of ascending infection in the literature, but canthal involvement is often reported.

In this case, we can hypothesize that the infection of the canthal opening of the fistula was due to local factors, such as the proximity of the nasolacrimal duct, or repeated trauma of this area from fingers/fingernails. Preoperative imaging is mandatory to rule out intracranial extension (**Figure 2**), which can be suspected in the case of other bony anomalies (eg, enlarged foramen caecum of the anterior cranial fossa, bifid crista galli). Magnetic resonance imaging is essential for the preoperative differential diagnosis (eg, encephalocele, vascular anomalies, low-grade tumors).[4] Surgical planning is based on the location and extension of the dermoid. Direct excision through a midline vertical approach is often sufficient. Other interventions, such as rhinoplasty, craniotomy, endoscopic-assisted procedures, and local flaps, may be required to provide a radical excision with acceptable aesthetic results. Incomplete removal of the entire dermoid tract allows for disease recurrence.[3,4] ■

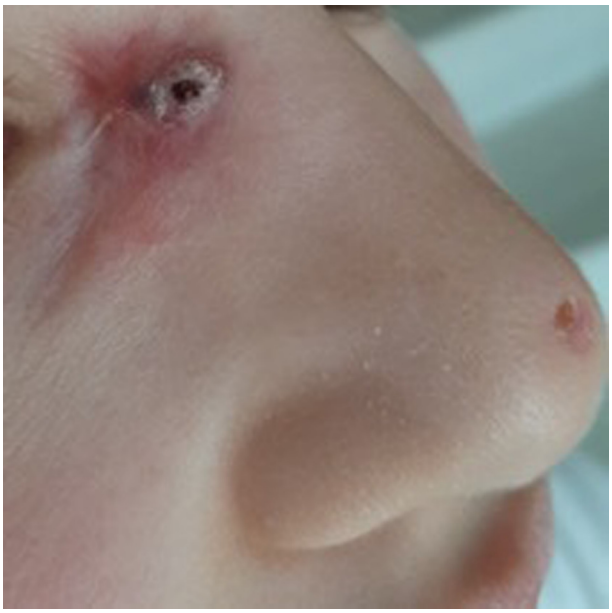

Figure 1. Nasal dermoid fistula extending from the medial cantus of the right eye to the nasal tip.

This work was supported by the Italian Ministry of Health, in collaboration with the Institute for Maternal and Child Health IRCCS Burlo Garofolo. The authors declare no conflicts of interest.

Enrico Muzzi, MD
Institute for Maternal and Child Health
IRCCS "Burlo Garofolo"
Trieste, Italy

Alessandro Zago, MD
Department of Medicine
Surgery and Health Sciences
University of Trieste
Trieste, Italy

Egidio Barbi, MD
Institute for Maternal and Child Health
IRCCS "Burlo Garofolo"
Trieste, Italy
Department of Medicine
Surgery, and Health Sciences
University of Trieste
Trieste, Italy

Giorgio Cozzi, MD, PhD
Institute for Maternal and Child Health
IRCCS "Burlo Garofolo"
Trieste, Italy

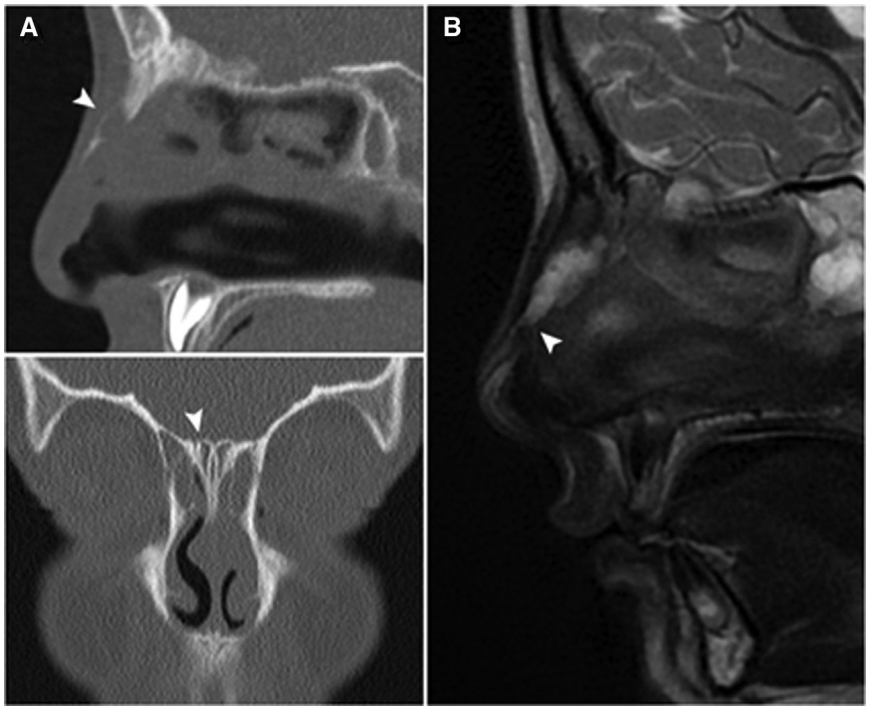

Figure 2. Imaging rules out intracranial extension of the dermoid and is essential for differential diagnosis. **A,** Computed tomography scan in sagittal view (up), showing a large defect in the right nasal bone (*arrow*) and no communication between the nasal space and anterior cranial fossa, and coronal view (down) showing a bifid and pneumatized crista galli (*arrow*). Frontal sinus aplasia is noticeable. **B,** Sagittal magnetic resonance imaging showing the course of the nasal dermoid fistula from the prenasal space to the nasal tip (*arrow*).

References

1. Zapata S, Kearns DB. Nasal dermoids. Curr Opin Otolaryngol Head Neck Surg 2006;14:406-11.
2. Rahbar R, Shah P, Mulliken JB, Robson CD, Perez-Atayde AR, Proctor MR, et al. The presentation and management of nasal dermoid: a 30-year experience. Arch Otolaryngol Head Neck Surg 2003;129:464-71.
3. Miller C, Manning S, Bly R. Surgical management of nasal dermoid lesions. Operat Tech Otolaryngol Head Neck Surg 2019;30:1043-810.
4. Herrington H, Adil E, Moritz E, Robson C, Perez-Atayde A, Proctor M, et al. Update on current evaluation and management of pediatric nasal dermoid. Laryngoscope 2016;126:2151-60.