

**Title:** When is imaging required for craniofacial dermoid cysts/sinuses? A review.

**Introduction:** Dermoid cysts/sinuses (DCS) are congenital masses occurring along lines of embryonic fusion. Midline DCS carry a risk of intracranial extension. Pre-operative CT or MRI are the primary imaging modalities used and based on the results, the need to involve a neurosurgical team in the resection is determined. Although less so, non-midline locations are also at risk for intracranial communication. This study aims to quantify our institutional experience with both midline and lateral DCS for intracranial extension and discuss potential need for preoperative imaging in all DCS cases.

**Methods:** Institutional Review Board approval was obtained. Pediatric patients ages 0-18 years with DCS presenting to the pediatric otolaryngology, plastic surgery, and neurosurgery clinics from 2005-present were reviewed. Data collected included patient demographics, imaging modality, location, size and presence/absence of intracranial/intradural extension. DCS location included nasoethmoidal (NE), periorbital, frontotemporal (FT), and scalp. Lesions were further classified as midline and non-midline.

**Results:** 211 patients with surgically removed DCS were included for analysis. Mean age at surgery was 3 years (0.1 – 16). MRI was the most common imaging modality used (39%), followed by US (21%), CT (9%) and plain films (<1%). Locations were: NE (75, 35.5%), periorbital (67, 31.8%), FT (28, 13.3%), and scalp (41, 19.4%). 111 DCS were midline: NE (75), periorbital (7), and scalp (29). Of these, 29 (26.1%) had intracranial extension: NE (8), scalp (21). 15 midline DCS with intracranial extension also had intradural extension: NE (4), scalp (11). 100 DCS were non-midline: periorbital (60), FT (28) and scalp (12). Of these, 7 (7%) had intracranial extension: periorbital (3), FT (3) and scalp (1).

**Conclusion:** The risk of intracranial or intradural extension of midline craniofacial DCS is well established. We have shown that there is a small percentage of lateral DCS which carry a risk for intracranial extension, and for which the involvement of a neurosurgical team may be required. Given the low morbidity, low cost and the potential benefit, pre-operative imaging of all lateral head and neck DCS initially with US may be prudent to screen for intracranial extension and determine the need for more detailed preoperative imaging by MRI or CT.