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When is pre-operative imaging of head and neck dermoids cysts necessary to evaluate for possible intracranial extension?

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Keywords

dermoid; dermoid cyst; intracranial extension

Abstract

Introduction

Dermoid cysts are congenital masses which occur frequently in the head and neck region along lines of embryonic fusion. Anatomic locations can be categorized in four areas: nasoethmoidal, periorbital, frontotemporal and neck. Traditionally, imaging of midline dermoid cysts is recommended given the potential for intracranial communication. Although less so, non-midline locations are also at risk for intracranial communication. This study aims to quantify our institutional experience with lateral dermoid intracranial extension and discuss potential need for preoperative imaging.

Methods

Institutional Review Board approval was obtained. Patients with dermoid cysts presenting to the pediatric otolaryngology clinic from 2015-present were reviewed. Data collected included patient demographics, imaging modality if any (CT, MRI, US, x-ray), anatomic location, size of lesion and presence or absence of intracranial extension. Lesions were classified as midline and non-midline.

Results

Seventy-six patients with surgically removed dermoid cysts or sinuses were included for analysis. Of these, 41 were female and 35 were male. Mean age at surgery was 4.4 years (range 0.6 - 17 years). Thirty-nine dermoids were midline: nasoethmoidal (17) and neck (22). Of these, 31 underwent pre-operative imaging (79%): US (17), MRI (12), and CT (2). Thirty-seven dermoids were non-midline: frontotemporal (9), neck (1), and orbital (27). Of these, 12 underwent pre-operative imaging (32%): US (9), MRI (1), CT (1) and plain films (1). Interestingly, none of the midline dermoids in our series were found to have intracranial extension. One patient with a frontotemporal dermoid cyst had no pre-operative imaging and was found to have intracranial extension to the dura identified intraoperatively.

Conclusion

The risk of intracranial extension of midline cranial dermoid cysts is well established. While the vast majority of laterally located head and neck dermoid cysts do not have intracranial communication, the incidence of intracranial extension is not zero. Given the low morbidity, low cost and the potential benefit, pre-operative US imaging of all head and neck dermoid cysts, particularly midline and frontotemporal, may be prudent to determine the need for MRI and/or CT imaging prior to surgical resection.

