

# Periocular Dermoid Cysts: Common Sites in Referral Cases in An Iranian Population

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## Abstract

**Purpose:** To review periocular dermoid cysts to determine distribution of demographic factors, and tumor location

**Methods:** In this retrospective, observational case series in a tertiary-care hospital, we reviewed all cases of histopathologically verified periocular dermoid cysts at our institution between 2003 and 2011. The study endpoints included: age, gender, and tumor location.

**Results:** Two hundred and thirty-nine patients entered the study; whose mean age at the time of surgery was 11.8 years (range 6 months-48 years, 54% male). The frequencies of dermoid cysts in supranasal and supratemporal locations were fairly equal (46% and 49.4% respectively).

**Conclusion:** In contrast to previous reports, we reported fairly equal frequency of supranasal and supratemporal locations in an Iranian group of patients.

**Keywords:** Orbital tumor, Dermoid Cyst, Periorbital Tumor

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## Introduction

Dermoid cysts are developmental choristomas, containing skin and skin appendages. They are the most common orbital tumors of childhood<sup>1</sup> (24-46% of all orbital tumors in children).<sup>2</sup> They account for 2-9% of all orbital tumors in all ages. In the extraconal area, orbital dermoid along with capillary hemangioma are the most common tumors in young patients.<sup>3</sup>

Dermoid cysts has been reported in almost any subcutaneous location, but more frequently in head (80%) with the majority in periorbital area and orbit, specially superotemporally near the zygomatico-frontal suture (more than 80% of orbital dermoid cysts).<sup>1,4,5</sup> Supra-nasal area is the second most common location for these lesions.

Dermoid can rarely arise within the diploe of the skull and orbital bones, causing bone tables to expand, and may reach an enormous size.<sup>6</sup> The lesion is generally superficial, and usually becomes evident in the first decade of life. Nevertheless, a small subgroup of deeper cysts present with a superficial expression.<sup>4</sup>

In this study, we reviewed cases of histopathologically verified orbital tumors that underwent surgery in our institution between 2003 and 2011, and studied distribution of age and sex, and tumor location in the orbit. To our knowledge, this report is the first statistical review of periocular dermoid cysts in Iranian population.

## Methods

This is a retrospective, observational case series of all consecutive patients with periocular dermoid cysts operated in Farabi Eye Hospital, Tehran between January 2003 and December 2011.

All pathologically approved periocular dermoid cysts were included in the study. Their medical histories were reviewed for demographic information, presenting symptoms and tumor location. All patients had undergone refraction pre- and postoperatively to screen corneal astigmatism, and all patients had experienced complete medical examination.

All cases were confirmed with histopathology. Clinical and pathologic records and photographic documents were

studied. We included only complete medical records in the study. Cases with inconclusive pathology were excluded (9 cases: 4 of them with supratemporal and 5 of them with supranasal suspected dermoid cysts). The main outcome measure is the location of dermoid cysts. Patients were divided into three groups based on the location of the lesion: supranasal, supratemporal, and other locations (inferotemporal, inferior, intraorbital, intradiplonic, and other locations).

We used SPSS 11.0 for data entry and descriptive analysis. We used nonparametric analysis to evaluate significance of differences (sex and tumor location).

## Results

Two hundred and thirty-nine consecutive Iranian patients with periocular dermoid (age range, 6 months to 48 years; mean age 11.8 years; 129 men, 110 women) were included in this study (Table 1). No significant refractive error, attributable to superficial dermoid cysts was present before surgery. The duration of symptoms (reported by patients) was between 7 weeks and 17 years. One hundred and eighteen dermoid cysts were located superotemporally (49.4%), 110 superonasally (46%). Other sites included; 6 intraorbital (presented with proptosis), one on the conjunctiva; near the insertion of inferior rectus muscle, one in frontal bone, and, one in maxillary sinus with orbital extension (we included only dermoid cysts and not limbal or corneal dermoids in the study). There were no significant differences between male and female in the study ( $p$ -value=0.2 nonparametric binomial test). Also, there were no significant differences between supranasal and supratemporal location of dermoid ( $p$ -value=0.6 nonparametric binomial test).

Dermoid cysts most commonly present as a palpable and visible mass (95.8%). In 228 patients (95.4%) the cysts were superficial with distinct margins, and in 11 patients (4.6%) cysts were deep beyond the orbital rim with indistinct margins requiring imaging studies (mostly orbital CT scan, because of accessibility in our hospital; but MRI had been used in suspected cases). Deeper cysts (11 patients) most commonly present as progressive proptosis (six patients) and in

three of them the mass was palpable deep in orbital rim. Six patients with intraorbital lesions consulted our clinic after 20 years of the onset of the lesion. Patients with dermoid cysts from other sites (not supranasal or supratemporal) consulted at higher age (mean age 23 years compared to 10.4 and 12 for supranasal and supratemporal sites respectively). Although patients with superficial cysts had the lesion from childhood; some of them came for surgery quite late. Seven patients had pathology reported as epidermoid cysts (2.9%).

The most common surgical complication was postoperative edema and ecchymosis. There were no other complications in superficial cases. On the other hand in two cases of deeper cysts, patients experienced reoperation for recurrence.

**Table 1.** Demographic data of three different sites of dermoid cysts

	Supranasal	Supratemporal	Other sites
Number	110 (46%)	118 (49.4%)	11 (4.6%)
Sex (F:M)	53:57	53:65	4:7
Age (SD)	10.4 (9.2)	12 (9.6)	23 (9.2)

F: Female, M: Male, SD: Standard deviation

## Discussion

We performed a retrospective study on periorbital dermoid cyst patients who underwent surgery in Farabi Eye Hospital, demonstrating different periorbital dermoid localization and distribution of age and sex.

Despite the various presentations and types of dermoid cysts, there is no clinically applicable classification of these lesions.<sup>7</sup> The orbital cysts are classified as intraorbital and periorbital, according to their place in relation to orbital rim.

In one report ocular and orbital lesions account for half the dermoid cysts in the head and neck region; almost two thirds arise at the lateral border of the orbit.<sup>8</sup> In another study, of 31 cases of surgically treated orbital dermoid cyst, the preseptal localization predominated, with 29 cases.<sup>9</sup> Shields et al, studied 197 consecutive orbital and periorbital dermoid cysts, and concluded that in 72% of patients, the mass was located in the supratemporal orbital region and produced no abnormalities

of vision (similar to our results).<sup>7</sup> Another series concluded that orbital dermoid cysts are frequently located at the lateral aspect of the orbit (69%, 111/160).<sup>10</sup> Same results were achieved by Cavazza et al with the most frequent localization of the cysts, the superior temporal zygomatico-frontal suture (86.6%), followed by the superior nasal frontal suture (10%).<sup>4,11</sup>

In our clinical practice we noticed that there was no significant difference between supratemporal and supranasal location of the lesions; so we conducted this study. Our findings provided that the supratemporal vs. supranasal distribution of the dermoid cyst do not show any significant difference and both were significantly higher than other sites. In contrast to a previous study with fairly equal sex distribution,<sup>12</sup> our study and three other reports suggested a male preponderance.<sup>13-15</sup>

Our study has some referral biases. The majority of patients had been referred from other practices, so there was a bias towards complex cases. We may assume as temporal dermoids are more accessible for operation; there may be a referral trend toward more challenging nasal dermoids; so the results may not be correct in the whole community; so further multicenter studies are recommended to confirm our results.

This is the first study in the literature about the spectrum of periorbital dermoid cysts in Iranian population. As it seems that distribution of location is different in Iranian patients, other studies are needed to confirm this finding.

## Conclusion

In contrast to previous reports we found a fairly equal distribution of periorbital dermoid cyst in supranasal and supratemporal locations in an Iranian group of patients.

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