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Case Series

Medial Canthal Masses Mimicking Lacrimal Sac Mucocele - A Case Series

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ABSTRACT

Aim: To study clinico-histopathological characteristics of medial canthal masses mimicking lacrimal sac mucocele.
Materials and methods: A retrospective interventional study was conducted over a period of four years. Patients presenting with a mass in the lacrimal sac area that did not cross the medial canthal tendon and whose chief complaint was epiphora were included in the study. Patients presenting with a mass in the medial canthal region crossing the medial canthal tendon, as well as those who did not complete a minimum follow-up period of one year, were excluded. Detailed clinical data were recorded, including case notes, findings of the Regurgitation on Pressure over Lacrimal Sac (ROPLAS) test, Lacrimal Syringing in adult patients, and the Fluorescein Dye Disappearance Test (FDDT) in pediatric patients. Imaging findings, histopathological results, and clinical outcomes were also documented. All patients underwent excision biopsy through a 6–8 mm tear trough incision.
Results: A total of six patients were included in the study, with an equal male-to-female ratio (M: F = 1:1). The mean age of the patients was 22 years, ranging from 6 to 38 years. The Regurgitation on Pressure over Lacrimal Sac (ROPLAS) test was negative in all cases (100%). Syringing of the lacrimal drainage system was performed in adult patients, which revealed a patent system in one case (50%) and partial patency in the other case (50%). In pediatric patients, the Fluorescein Dye Disappearance Test (FDDT) was conducted, showing positive results in two cases (50%) and equivocal findings in two cases (50%). Imaging investigations were reserved for cases with clinical diagnostic uncertainty; Contrast-Enhanced Computed Tomography (CECT) was performed in one case, and Computed Tomography–Dacryocystography (CT-DCG) with contrast drop technique was carried out in another case. Histopathological examination revealed that the most common lesion was an Epidermal Inclusion Cyst, identified in three cases. The remaining cases showed diverse pathologies, including Cavernous Hemangioma, Lymphangioma, and Cysticercosis, each detected in one case. These findings demonstrate a heterogeneous spectrum of underlying lesions contributing to the clinical presentation.
Conclusion: The masses in lacrimal sac area can mimic lacrimal mucocele. By causing compression effect on sac, they can present with complaint of epiphora as well. In clinical diagnostic dialemma, imaging should be done. Management changes to excision biopsy rather than conventional DCR (dacryocystorhinostomy) surgery. The histopathology reveals many variable differentials.
Keywords: Lacrimal mucocele mimics, mass in medial canthal area, epiphora

INTRODUCTION

A mass in medial canthal area is mostly a lacrimal mucocele with presenting complaint of watering in same eye [6]. However, many other lesions can also be found in this area and can cause watering by

causing pressure effect on lacrimal sac, affecting drainage of tear-fluid. These include lesions arising from orbit, brain, sinuses, nasal cavity, periocular soft tissues etc. [5]. A meticulous clinical examination of these lesions, clinical tests including syringing and fluorescein dye disappearance test, imaging including CT-dacrocystography are necessary to differentiate these lesions from true lacrimal mucocele [5].

MATERIALS AND METHODS

A retrospective interventional case study including six patients was conducted over a period of two years, from June 2015 to June 2017. Patients presenting with a chief complaint of a mass in the lacrimal sac area, medial canthal area, or inner corner of the eye that did not cross the medial canthal tendon (MCT) and was associated with epiphora were included in the study. Patients presenting with a mass in the medial canthal region crossing the MCT, as well as those who did not complete a minimum follow-up period of one year, were excluded. Clinical details were documented from case notes, including findings of the Regurgitation on Pressure over Lacrimal Sac (ROPLAS) test, Lacrimal Syringing performed in two adult patients, and the Fluorescein Dye Disappearance Test (FDDT) performed in four pediatric patients. Imaging studies, including Contrast-Enhanced Computed Tomography (CECT) or Computed Tomography–Dacryocystography (CT-DCG) with the contrast drop technique, were performed in two cases. Histopathological examination was carried out in all patients, and clinical outcomes were recorded.

All patients underwent excision biopsy through a 6–8 mm tear trough skin incision in the medial canthal area using an 11-number blade. The orbicularis muscle fibers were separated by blunt dissection, and the mass was excised in toto and sent for histopathological examination. In all cases, the mass was found to be separate from the lacrimal sac. Postoperative lacrimal syringing was performed to confirm the patency of the lacrimal drainage system in all patients. Patients were followed up for one year, and all remained symptom-free during the follow-up period.

CLINICAL CASES

Case-1- A 30 years old male presented with a mass in inner corner of left eye and watering from same eye since last 6 months. It was a well-defined, firm and non-tender mass. Syringing was partially free. Imaging was not done in this case. After excision biopsy, it came out to be a cysticercosis cyst on histopathology.

Fig-1a,1b,1c-Case-1- cysticercosis cyst-

Case-2– A 38 years old male presented with mass below left lower lid with complaint of watering from same eye since last 6 months. It was a well-defined, firm, freely mobile and non-tender mass. Syringing was free. Imaging was not done in this patient. On excision biopsy, it came out to be a cavernous haemangioma.

Fig-2a,2b,2c-Case-2- cavernous haemangioma- (histopathology showing dilated thin-walled blood vessels)

Case-3- A 9 years old female child presented with painless mass below right lower lid with watering since last 2 years. It was well-defined, firm, non-tender mass with partial mobility. FDDT was equivocal. Imaging (CECT) showed a well-defined isodense mass in lacrimal sac fossa. Histopathology showed an epidermal inclusion cyst.

Fig-3a,3b,3c- Case-3- epidermal inclusion cyst-(histopathology-clear cystic space lined with epidermis-like layer) (CT-scan-hyperdense/contrast enhanced well defined lesion with central clear space separate from lacrimal drainage system)

Case-4- A 10 years old male, presented with complaint of swelling below right lower lid with watering since last 7 months. It was a well-defined, non-tender and cystic mass. FDDT was positive. Imaging (CT-drop DCG) showed cystic mass with pooling of dye in proximal part of lacrimal sac. On excision biopsy, it came out to be an epidermal inclusion cyst.

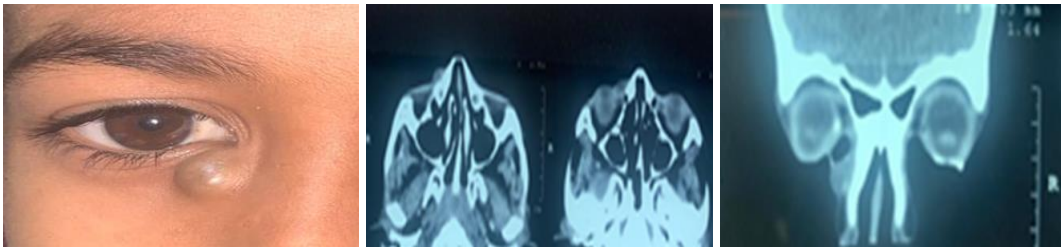

Fig-4a,4b,4c-case-4-epidermal inclusion cyst- (CT drop-DCG showing pooling of dye in proximal part of sac, indicating pressure effect of the lesion on sac)

Case-5- A 6 years old female child presented with left eye swelling at inner corner with watering and discharge since birth. On examination,there was a well-defined, firm mass with free mobility. FDDT was equivocal and Imaging was not done in this case. Excision biopsy revealed an epidermal inclusion cyst.

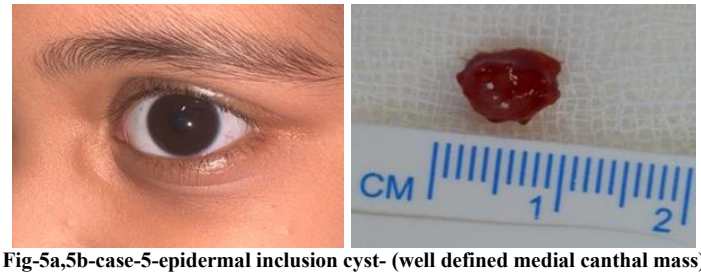

Fig-5a,5b-case-5-epidermal inclusion cyst- (well defined medial canthal mass)

Case-6- A 10 years old female child with left eye inner corner mass with exacerbations and remissions along with cold associated with watering. On examination, there was a diffuse, soft, non-tender mass with bluish hue. FDDT was positive. Imaging was not done. After excision biopsy, it came out to be a lymphangioma.

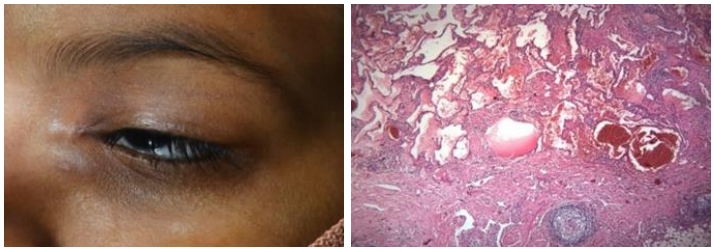

Fig-6a,6b- case-6- lymphangioma- (histopathology- thin vascular spaces with lymphatic channels and lymphoid follicles)

RESULTS

The study included six patients with a mass in the lacrimal sac region. The male-to-female ratio was equal (1:1), and the mean age of presentation was 22 years, with a wide age range of 6–38 years, indicating that the condition affected both pediatric and adult populations (table 1). The Regurgitation on Pressure over Lacrimal Sac (ROPLAS) test was negative in all patients (100%), suggesting the absence of classical nasolacrimal sac obstruction or dacryocystitis. Among the two adult patients who underwent Lacrimal Syringing, one case (50%) demonstrated a patent lacrimal drainage system, while the other showed partial or restricted flow (50%). In the pediatric subgroup (n = 4), the Fluorescein Dye Disappearance Test (FDDT) was positive in two patients (50%) and equivocal in the remaining two (50%), indicating variable tear drainage dynamics. Imaging studies were selectively performed in cases with diagnostic uncertainty; Contrast-Enhanced Computed Tomography (CECT) was carried out in one patient and Computed Tomography–Dacrocystography (CT-DCG) using the contrast drop technique in another. Overall, these findings suggest that although patients presented with epiphora and a mass in the lacrimal sac region, the lacrimal drainage system was largely patent, supporting the likelihood of lesions adjacent to, rather than arising from, the lacrimal sac.

Table 1. Demographic and Clinical Characteristics of Patients (n = 6)

Variable	Findings
Total number of patients	6
Male: Female	1: 1
Mean age (years)	22 (range: 6–38)
Regurgitation on Pressure over Lacrimal Sac (ROPLAS) test	Negative in 6 (100%)
Lacrimal Syringing (adults, n = 2)	Patent in 1 (50%); partially free/not free in 1 (50%)
Fluorescein Dye Disappearance Test (FDDT) (children, n = 4)	Positive in 2 (50%); equivocal in 2 (50%)
Imaging	Contrast-Enhanced Computed Tomography (CECT) in 1 case; Computed Tomography–Dacrocystography (CT-DCG) in 1 case

Values are presented as number (percentage) where applicable.

DISCUSSION

A mass in medial canthal area can arise from lacrimal sac, orbit, brain, sinuses and periocular skin and soft tissues [5]. The most common cause is lacrimal sac mucocele, that develops due to blockage of naso-lacrimal duct and treatment for the same is dacryorhinostomy surgery [6], however more serious causes of NLD obstruction including neoplasms should also

be considered [6].

Nasal conditions like allergic rhinitis, lacrimal wall maldevelopment, or other nasal mucosal inflammatory disorders may also mimic a CNLDO (congenital nasolacrimal duct obstruction). Occasionally subtle medial most ankyloblepharon can also be mistaken for a CNLDO [7].

Lelli and levi [2] reported a case of 21-month-old child who was misdiagnosed as dacyocystocele by a radiologist on CT-scan, was planned for DCR surgery. The mass was found to be non-communicating with lacrimal sac and excision-biopsy was done, histopathologically it was an epidermoid inclusion cyst.

Goh et al. [3] reported 3 cases of respiratory epithelial cysts presenting with orbital signs. On imaging, cysts were seen between medial rectus and inferior oblique muscles. The diagnosis was confirmed by histopathology. Lereux et al. [4] reported 2 cases of subcutaneous masses presented as medial canthal masses, excision biopsy showed epidermal inclusion cysts. Khan et al. [1] reported 3 cases of painless, non-compressible masses in medial canthal area. Histopathology revealed thrombosed vascular masses.

Our case-series included 6 patients, all presented with complaint of visible mass in medial canthal area associated with watering from same eye. Roplas was negative in all. Syringing was either patent or partially patent, indicating diagnosis against lacrimal mucocele. FDDT was either positive or equivocal. CT drop DCG, when done, showed masses non-communicating with lacrimal system, ruling out lacrimal mucocele. Excision biopsy was done in all cases, rather than conventional DCR surgery. Histopathologically, these were epidermal inclusion cysts, cavernous haemangioma, lymphangioma and cysticercosis cyst.

CONCLUSION

This case-series revealed that certain lesions, unrelated to lacrimal sac, in same area, can present with similar complaints by the patients. On excision biopsy followed by histopathology, these lesions were found to be epidermal inclusion cysts, cavernous haemangioma, lymphangioma and cysticercosis cyst.

The right diagnosis guided by clinical examination, proper history, syringing (FDDT in children), imaging (CT-drop-DCG) [5] is necessary to plan right treatment and avoid intraoperative surprises.

Declaration by Authors

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