ORIGINAL ARTICLE

THE INCIDENCE AND CLINICAL CORRELATION OF DACRYOCYSTITIS WITH NASAL PATHOLOGY IN A TERTIARY CARE HOSPITAL

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Background: Dacryocystitis is the inflammation or infection of the lacrimal sac. This condition frequently occurs secondary to nasolacrimal duct blockage, causing tear stasis and ultimately infection. Objective was to identify the relationship between chronic dacryocystitis and different nasal pathologies for accurate diagnosis, management, and preventing relapse in a cohort of 320 patients. **Methods**: This was a descriptive cross-sectional study and conducted at the ENT and Eye Departments of Ayub Teaching Hospital, Abbottabad from 1st April 2024 to 31st January 2025. The study enrolled 320 patients of age 18 years and above, irrespective of gender with clinically and or radiologically diagnosed dacryocystitis. Collected data was analyzed to determine the prevalence of nasal pathologies. Data analysis was done using SPSS version 28. **Results**: The study highlights that 32.8% cases of chronic dacryocystitis had underlying nasal pathologies with deviated nasal septum in 15%, hypertrophied inferior turbinate 6.9%, nasal polyps 5.9%, rhinolithiasis 1.6 %, nasal tumors 3.4% and no pathology was found in 67.2% of cases. **Conclusion**: This study demonstrates an important correlation between chronic dacryocystitis and nasal abnormalities and thus highlights the importance of interdisciplinary strategy for the diagnosis and management of chronic dacryocystitis.

Keywords: Dacryocystitis; Deviated nasal septum; Nasolacrimal duct obstruction; Hypertrophied inferior turbinate

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INTRODUCTION

Dacryocystitis is the inflammation or infection of the lacrimal sac.[1] It is an ophthalmological disorder that has the potential to cause substantial morbidity if not immediately diagnosed and treated accordingly. This condition frequently occurs secondary to the nasolacrimal duct blockage, causing tear stasis and ultimately infection.[2] It can manifest in acute or chronic forms. The typical presentation of acute dacryocystitis is swelling, pain and redness over lacrimal sac, along with fever. In contrast, chronic dacryocystitis is usually characterized by continuous tearing and intermittent discharge typically lacking overt inflammation.[3] People across all age groups are prone to this condition, but chronic dacryocystitis significantly occurs in older adults because of age-induced deterioration in the lacrimal drainage system. Women are predominantly affected because of the narrower nasolacrimal ducts in females and hormonal fluctuations during pregnancy and menopause.[4]

Nasal abnormalities can result in blockage of nasolacrimal duct and the manifestation of dacryocystitis. Deviated nasal septum, hypertrophied inferior turbinates, nasal polyps, rhinolithiasis, and nasal tumors are capable of either mechanically obstructing the nasolacrimal duct or triggering inflammation that reduces its functionality. Nasal airflow can be altered by a deviated nasal septum causing stasis of tears.[5] Likewise, hypertrophied turbinates can directly block the duct or cause secondary inflammation.[6] Nasal polyps and tumors are either capable of physically blocking the duct or infiltrating its anatomical structures.[7] Rhinolithiasis is one of the rare causes of nasolacrimal duct obstruction and secondary inflammation.[8]

Diagnosing dacryocystitis requires an assessment of both the lacrimal system and nasal cavity supplemented by imaging studies. Nasal endoscopy is especially useful for detecting underlying nasal abnormalities, aided by imaging techniques like computerized tomographic (CT) scan of nose and para nasal sinuses. Initial management of dacryocystitis includes systemic antibiotics and warm compresses, while abscesses are treated with incision and drainage. Restoration of the patency of the nasolacrimal duct through dacryocystorhinostomy (DCR) is the definitive management for

dacryocystitis. DCR can be performed externally or endoscopically.

In this study, our goal is to identify the relationship between chronic dacryocystitis and different nasal pathologies for accurate diagnosis, management, and preventing relapse. To enhance outcomes and quality of life for affected patients, chronic dacryocystitis must be approached as an interdisciplinary condition, involving both ophthalmologists and otorhinolaryngologists.

MATERIAL AND METHODS

This descriptive cross-sectional study was conducted at ENT and Eye departments of Ayub Teaching Hospital, Abbottabad from 1st April 2024 to 31st January 2025 after approval from institutional ethics committee and taking informed consent from all the participants. A total of 320 (95% confidence interval, 5% absolute precision and anticipated population proportion of 0.195)[6] consecutive patients of age 18 years and above, irrespective of gender were enrolled during the study period after detailed history, focusing on symptoms such as tearing, discharge, swelling, and pain. A thorough ophthalmic and ENT examination, including lacrimal sac palpation and fluorescein dye disappearance test, anterior rhinoscopy/nasal endoscopy to detect structural abnormalities like deviated nasal septum, hypertrophied turbinates, nasal polyps and/ or tumors was performed. CT scans of nose, paranasal sinuses and nasolacrimal duct was done, when needed, to identify anatomical obstructions or associated nasal pathologies. Patients with a history of facial trauma or past surgery on the nasolacrimal duct and lacrimal system were excluded from the study. Collected data was analyzed by SPSS version 28 to determine the prevalence of nasal pathologies in patients with dacryocystitis.

RESULTS

A total of 320 dacryocystitis diagnosed patients were included in the study. The results were evaluated to determine the prevalence of nasal pathologies and their association with dacryocystitis. Out of 320 patients, 202 (63.13%) were female and 118 (36.88%) were male showing a clear female predominance.

The age of patients ranged from 18 to 75 years, with a mean age of 56.48±11.40 years indicating that the largest proportion was constituted by older cases.

Figure 1 illustrates the frequency of different nasal pathologies. Out of a total 320 cases nasal pathology was not found in 215 (67.19%) while deviated nasal septum was present in 48 (15%), hypertrophied inferior turbinates in 22 (6.88%), nasal polyps in 19 (5.94%), rhinolithiasis in 5 (1.56%) and nasal tumours in 11 (3.44%) cases associated with dacryocystitis, demonstrating that deviated nasal septum was the most common abnormality.

Figure 2 demonstrates the distribution of dacryocystitis cases secondary to various nasal pathologies. Deviated nasal septum accounted for the majority (45.71%) of secondary cases, followed by hypertrophied inferior turbinate (20.95%), nasal polyps (18.10%), nasal tumours (10.48%) and the rhinolithiasis (4.76%).

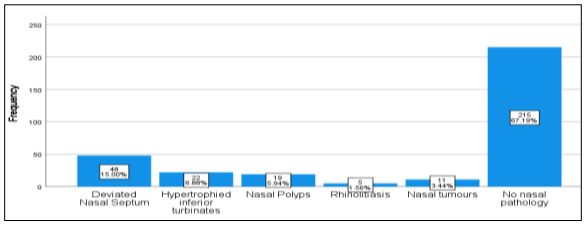

Figure-1: Prevalence of Nasal pathologies with Dacryocystitis

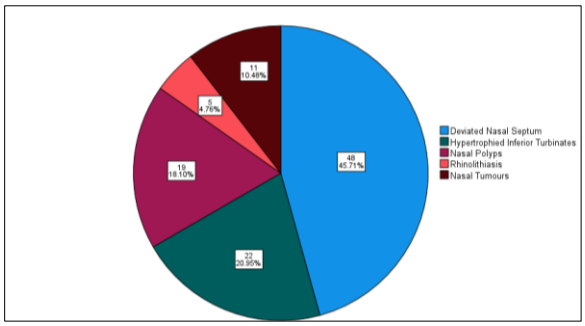

Figure-2: Dacryocystitis secondary to Nasal pathologies

DISCUSSION

Dacryocystitis, which is inflammation or infection of lacrimal sac, is an ophthalmological disorder frequently related to different nasal pathologies.[9] This study evaluated 320 patients, yielding a critical understanding of the demographic trends, clinical presentation, and the role of nasal pathologies in the disease process of dacryocystitis. The outcomes of the study suggest the need for a multidisciplinary attitude including both ophthalmologists and otolaryngologists for successful diagnosis and management.

The greater number of female patients (63.1%) presenting with chronic dacryocystitis in our study supports the existing research as of Barna *et al*, where it was stated to be 67.94%, indicating that anatomical differences in the nasolacrimal duct, including a narrower duct in females, make them susceptible to blockage and infection.[10] Baybora *et al*, also pointed about this anatomical finding in his study of patients with dacryocystitis.[11]

The distribution of age, having a mean of 56.48 years, specifies that dacryocystitis has an effect on a wide age range, but aged persons are more prone which is nearly similar to study conducted by Sara *et al*.[12]

The most important finding of this study was the significant prevalence of nasal pathologies among patients with dacryocystitis (32.8%), which is similar to a study conducted by Bale where 26.8% of patients with dacryocystitis were having an underlying nasal pathology.[13]Khatoon *et al* also reported that 30.18% patients diagnosed with dacryocystitis had underlying nasal pathology.[6] This signifies the crucial role of nasal pathologies in the blockage of the nasolacrimal duct. Deviated nasal septum (15%), hypertrophied inferior turbinate (6.9%), and nasal polyps (5.9%) were recognized as the most common nasal pathologies. These abnormalities can interfere with the patency of the nasolacrimal duct opening, causing blockage of the tears drainage hence leading to stagnation and infection.[6]

The high prevalence of deviated nasal septum in this study aligns with study conducted by Lee *et al* highlighting its role in nasolacrimal duct obstruction. 48(45.71%) patients had dacryocystitis secondary to symptomatic deviated nasal septum in our study, a high prevalence compared to other nasal pathologies resulting in dacryocystitis.[14] Patel *et al* also documented deviated nasal septum as a cause for dacryocystitis with high prevalence of 69%.[15] A deviated nasal septum can interfere with tear drainage, aggravating stagnation and making patients susceptible to dacryocystitis. Surgical rectification of deviated nasal septum in the form of septoplasty has been shown to improve results in such conditions by reestablishing regular anatomy and increasing tear outflow.[16]

In our study, 6.9% of the patients were found to have enlarged inferior turbinates which is quite consistent with study conducted by Khatoon *et al*, who in her study reported it to be 6.13%.[6] This abnormality narrows the nasal passageway and can directly block the nasolacrimal duct. The effectiveness in the improvement of tear drainage and decreasing recurrence rates has been proved by turbinate reduction surgery, frequently performed in combination with Dacryocystorhinostomy (DCR).[17]

Nasal polyps and tumors are not very common entities, and were found to have minimally contributed to dacryocystitis in this study. Tumors can block the nasolacrimal duct by invading or applying pressure, while polyps can block the duct physically. In our study, 19 (18.10 %, n=105) of dacryocystitis patients were found to have nasal polypi and only 11 (10.48%) patients presented with nasal tumours. Over all percentage of nasal growths among patients (n=320) was only found to be 5.94 % (nasal polypi) and 3.44 % (tumours). Patel *et al* also reported that only 4.7 % patients of dacryocystitis had underlying masses in the sinonasal cavity.[15]

Rhinolithiasis was a very rare entity causing dacryocystitis with only 5 patients reported in our study. Huo *et al*, had also reported nasal stones to rarely result in dacryocystitis in a case report.

Immediate diagnosis and management of these abnormalities are important to avoid complications, such as repeated infection and possible malignancy.[8] The increased prevalence of nasal abnormalities among patients of dacryocystitis necessitates thorough nasal assessments. A teamwork between ophthalmologists and otolaryngologists is required to treat cases of dacryocystitis secondary to nasal pathologies.[18]

CONCLUSION

This study highlights the important relation between dacryocystitis and underlying nasal pathologies. It suggests that elderly and female patients are more susceptible to this disease which is most likely due to age-related and anatomical factors.

This study also reveals that nasolacrimal duct obstruction, in many cases, can be secondary to a number of nasal pathologies, the most common being; deviated nasal septum, hypertrophied inferior turbinates, and nasal polyps, thus stressing the importance of detailed nasal examination in all patients of dacryocystitis. In order to ensure effective management and prevent recurrence and complications, collaboration between ophthalmologists and otolaryngologists is essential. Routine nasal endoscopic examination in all patients of dacryocystitis is highly recommended.

Overall, this study underlines the importance of identification and treatment of nasal pathologies and emphasizes the importance of a multidisciplinary approach to improve patient outcome and prevent recurrence and complications. An integrated and comprehensive approach for diagnosis and treatment will help clinicians achieve superior outcomes regarding the management of dacryocystitis, decreasing the healthcare burden.

AUTHORS' CONTRIBUTION

MIS: Idea of topic, literature search, data collection. ZS: Literature review, referencing. BA: Article writing and proof reading. HSK: Literature review, data analysis. TS: Data collection, proof reading. UA: Literature search, data analysis.

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