

Nasal Septal Abscess: A Retrospective Study of 20 Cases in KVG Medical College and Hospital, Sullia

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Abstract

Objective: Twenty patients who presented to the ENT, head and neck department with nasal septal abscess were retrospectively studied.

Design: Retrospective study.

Setting: KVG Medical College and Hospital, Sullia.

Study period: January 2006 to June 2010 (54 months)

Patients: Twenty patients (17 males and 3 females), aged between 7 to 45 years (average age 25.25 years), with nasal septal abscess were studied.

Intervention: All patients were admitted and posted for emergency incision and drainage under antibiotic cover. In 13 cases the destroyed septal cartilage was repaired with autologous conchal cartilage in the same sitting of incision and drainage. In two cases the same procedure was done in two different sittings.

Results: Sixteen patients were implanted autologous conchal cartilage at time of incision and drainage and most of them doing well at 6 months of follow-up.

Conclusion: Nasal septal abscess promptly treated under antibiotic cover total reconstruction of abscess-induced destruction of nasal septal cartilage with patients own conchal cartilage grafts so far, resulted in normal dorsum of the nose being retained during follow-up.

Keywords: Septal abscess, Nasal airway splints, Supratip deformity, Autologous conchal cartilage.

INTRODUCTION

The nasal septum is an essential structure maintaining the external framework of the nose.¹⁻³ Destruction of septal cartilage, partial or complete, can affect the function and shape of the nose.^{2,3} The normal development of the nose and maxilla is disturbed, if the nasal septal cartilage is destroyed in children and results in external deformity of the nose in adults.⁴⁻⁶

Complete destruction of the cartilaginous septum will result in an underdeveloped nose with varying degree of depression of dorsum of the nose.^{1,5} Severe depression of the dorsum may result in saddle nose deformity with columellar retraction and deformity of dorsum of nose and midface.^{1,5} Therefore, loss of septal cartilage in childhood is a serious condition that requires adequate surgical therapy to prevent functional and structural deformities in the future.^{1,5} Usually, the destruction and loss of septal cartilage in childhood is a complication of post-traumatic septal hematoma forming abscess.^{1,5} In adults complications of septal surgery is also a rare possible etiology.^{1,5}

In normal circumstances, the metabolism of septal cartilage depends on the perichondrial blood supply.⁷⁻⁹ However, the formation of a hematoma between the cartilage surface and the perichondrium can result in insufficient oxygenation and sterile necrosis.⁷⁻⁹ Frequently, the process of necrosis and liquefaction is intensified by collagenases that are produced by *Staphylococcus aureus*, *Pseudomonas aeruginosa*, Coagulase negative staph and *Streptococcus* species strains.⁷⁻⁹ These microorganisms can contaminate the hematoma, resulting in an abscess through microlesions in the mucoperichondrium or hematogenously.⁷⁻⁹

MATERIALS AND METHODS

This is a retrospective study conducted from January 2006 to June 2010. A total of 20 patients who presented to our OPD with nasal septal abscess were included in the study.

A full history was recorded and a thorough examination including the systemic and ENT examination (Fig. 1) was done for all these patients.

All patients were admitted and given IV antibiotics and surgical drainage was performed either under local anesthesia, sedation with injection of buprenorphine, promethazine and atropine or general anesthesia. Pus drained was sent for culture and antibiotic sensitivity. After drainage the septal cartilage was assessed. Thirteen patients had complete loss of cartilage, 4 partial loss and 3 had just softening of the septal cartilage. Large autologous conchal cartilage harvested (Figs 2 and 3). The cartilage was cut into 2-3 strips and sutured side by side by vicryl sutures (Fig. 4).

The graft was placed between the two intact mucoperichondrium flaps and stay sutures were put at the incision site (Fig. 5). Nasal airway splints were introduced in both nostrils and packing done with ribbon gauze piece (Fig. 6). In 2 cases merocel packing was done. In 3 cases grafting was postponed for 3 days because the patients did not consent for autologous conchal cartilage harvesting. In 4 cases only softening of cartilage was seen on incision and drainage so no grafting was done.

Nasal airway splints and packs were removed after 48 hours and framycetin wicks were placed for 24 hours and removed. Merocel airway splints removed after 48 hours and only ointment application done. In patients who did not consent for conchal cartilage harvesting initially delayed grafting was done within 4-7 days after drainage. All the cases were given broad spectrum antibiotics, decongestants and anti-inflammatory/analgesics for 5 days after grafting. All patients were discharged within 4-5 days after grafting. Follow-up was done after 1 week, 1 month and after 6 months.

RESULTS

The sex, age of the patients and the time interval between the onset of trauma to the diagnosis, treatment given and follow-up are tabulated in Table 1. Out of the 20 patients, 85% (17 cases) were males and 15% (3 cases) were females. The mean age was 25.25 years. The youngest was 7 years old and the oldest was 45 years old (Fig. 7).

Trauma accounted for all (100%) of the cases (Fig. 8). It is interesting to note that the average interval between trauma and diagnosis of nasal septal abscess was 3.6 days, ranging from 1-7 days.

The etiological agents isolated were *Staphylococcus aureus* 70%, *Pseudomonas auroginosa* 20%, *acinitibacter* 5%, *Coagulase negative staphylococcus aureus* 5% and others 5%. No polymicrobial growth was seen in any of the cultures (Fig. 9).



Fig. 1: Nasal septal abscess



Fig. 2: Conchal cartilage exposed



Fig. 3: Conchal cartilage being harvested

Figure 10 showed that all the cases presented with nasal obstruction and nasal pain. Eight of the patients had fever, chills and rigors. Four patients had headache and 2 cases had epistaxis.



Fig. 4: Cartilage assembled and sutured

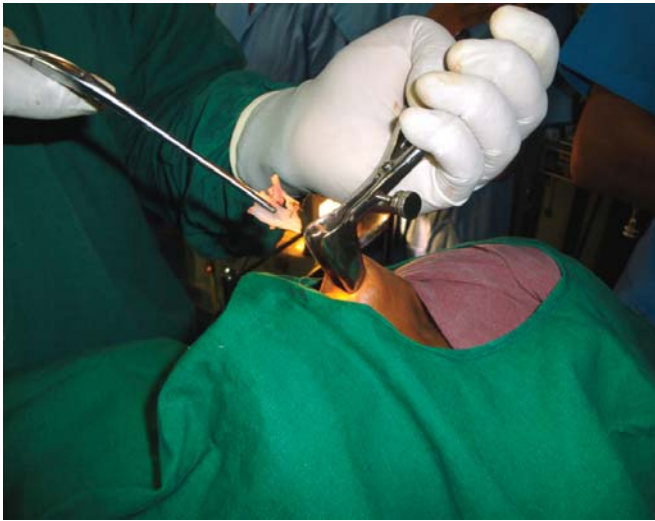


Fig. 5: Assembled cartilage being reintroduced into the septum



Fig. 6: Nasal airway splints after drainage

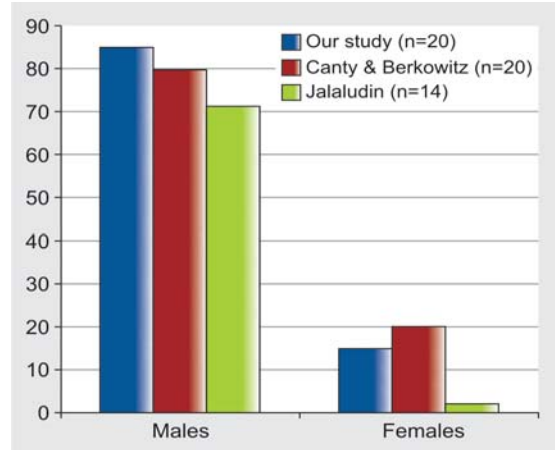


Fig. 7: Percentage of sex predilection (comparison between ours, Canty, Berkowitz's and Jalaludin's study)

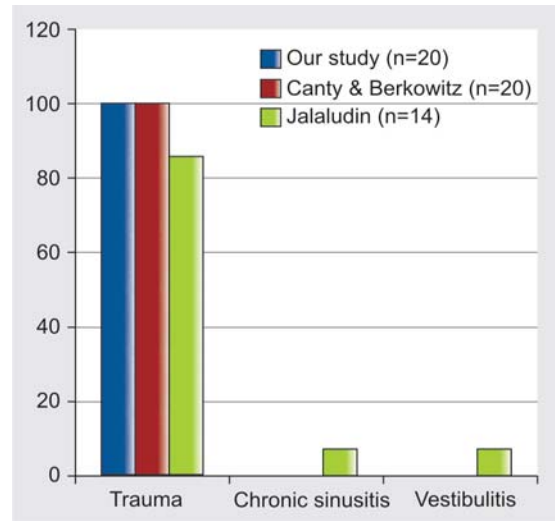
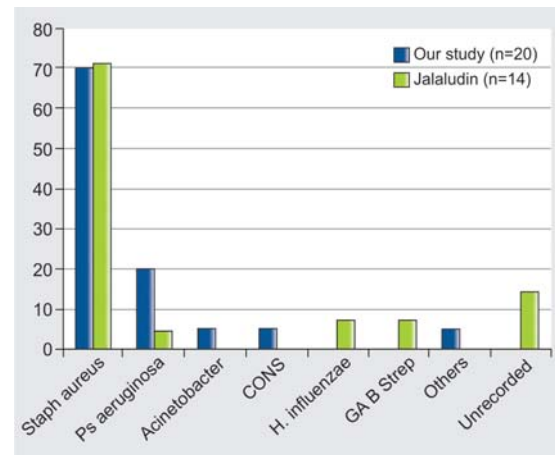


Fig. 8: Percentage of etiological agents (comparison between ours, Canty, Berkowitz's and Jalaludin's study)



Staph aureus – Staphylococcus aureus; Ps aeruginosa – Pseudomonas aeruginosa; Acinetobacter – Acinetobacter calcoaceticus; CONS – Coagulase Negative Staphylococcus aureus; H. influenzae – Hemophilus influenzae

Fig. 9: Causative agents

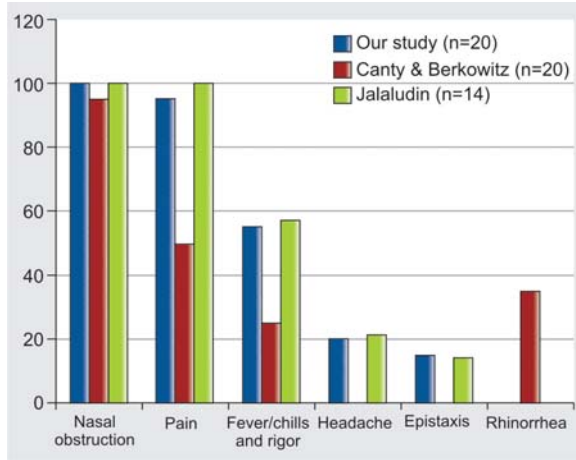


Fig. 10: Percentage of frequency of symptoms (comparison between ours, Canty, Berkowitz's and Jalaludin's study)

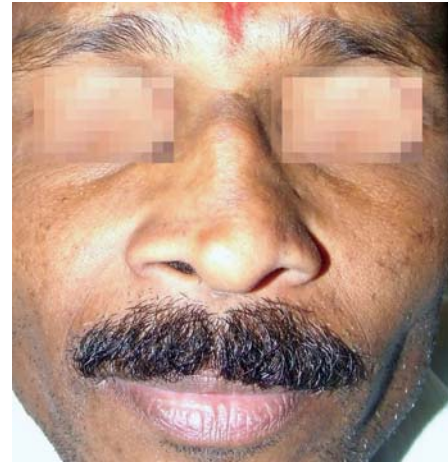


Fig. 11: Supratip deformity

Table 1: The details of age and sex distribution, the diagnosis, treatment and follow-up of the patients

Patient No.	Sex	Age	Time interval between trauma and diagnosis in days	Status of cartilage loss	After incision and drainage grafting considered in	Follow up days counted from date of discharge		
						1 week (cartilage graft status)	1 month (status of septum)	6 months (any septal or external deformity)
1	M	7	4	Complete	Autologous conchal cartilage	Intact	Intact	No
2	M	27	3	Complete	Autologous conchal cartilage	Intact	Follow-up lost	Follow-up lost
3	M	34	4	Complete	Autologous conchal cartilage	Intact	Intact	No
4	M	13	2	Partial	No grafting	Septum intact	Septal perforation	Septal perforation
5	M	17	4	Complete	Autologous conchal cartilage	Intact	Intact	No
6	M	35	3	Complete	Autologous conchal cartilage	Intact	Intact	Supratip deformity
7	F	12	4	Complete	Autologous conchal cartilage	Intact	Intact	No
8	M	45	7	Complete	Autologous conchal cartilage	Intact	Intact	Supratip deformity
9	M	34	6	Complete	Autologous conchal cartilage	Intact	Intact	No
10	M	9	4	Complete	Autologous conchal cartilage	Intact	Intact	No
11	M	9	3	Partial	Autologous conchal cartilage	Intact	Intact	No
12	M	14	2	Softening	No grafting	Septum intact	Intact	Follow-up lost
13	F	13	1	Softening	No grafting	Septum intact	Follow-up lost	Follow-up lost
14	M	32	3	Partial	Autologous conchal cartilage	Intact	Intact	No
15	M	36	4	Complete	Autologous conchal cartilage	Extruded	Septum intact	Supratip deformity
16	M	44	6	Complete	Autologous conchal cartilage	Intact	Intact	No
17	M	29	3	Complete	Autologous conchal cartilage	Extruded	Septal perforation	Septal perforation
18	F	19	3	Partial	Autologous conchal cartilage	Intact	Intact	No
19	M	36	1	Softening	No grafting	Septum intact	Follow-up lost	Follow-up lost
20	M	40	4	Complete	Autologous conchal cartilage	Extruded	Septal perforation	Saddle nose deformity



Fig. 12: Saddle nose deformity

The finding of anterior rhinoscopy of all the patients revealed bilateral septal swelling (Fig. 1).

The patients were followed-up for 1 week, 1 month and 6 months from the date of discharge. Follow-up of 4 patients were lost within 1 month.

Out of the 16 cartilage grafting 3 had extrusion of cartilage within 1 month. In these 3 patients 1 had septal perforation and supratip deformity, 1 had intact septum and supratip deformity and the other had septal perforation and saddle nose deformity (Figs 11 and 12). Of the remaining 13, 8 patients are doing well after 6 months of follow-up without any nasal dorsum abnormality, 2 have columellar retraction with mild supratip deformity and 4 are lost to follow-up. The other 3 patients who had just cartilage softening are doing well after 6 months of follow-up, but 1 patient with partial cartilage loss developed septal perforation.

Two out of the 20 developed saddle nose deformity and septal perforation. These 2 patients presented late and were diagnosed as septal abscess after 10 days and 2 weeks respectively from the history of trauma.

DISCUSSION

The incidence of nasal septal abscess is rare and only 20 cases presented to our hospital over the past 54 months.¹⁰ Eavey found 3 cases of nasal septal abscess in a 10-year review at children hospital in Los Angeles.¹⁰ Fearson described 43 cases of nasal septal abscess over an 8-year period at the hospital for sick children in Toronto.¹¹ Ambrus et al reported 16 cases occurring over a 10 year period at the Massachusetts eye and ear infirmary.³ Canty and Berkowitz reported 20 cases of nasal septal abscess in 1996

in 18 months period.¹² Jalaludin reported 14 cases occurring in university hospital Kuala Lumpur in 1992.¹³

The common finding in the above mentioned series is that there is no age predisposition which is also evident in our study.¹³ Trauma is the etiological factor in all our study which is similar to all the above mentioned studies.¹² Jalaludin in his case series of 14 patients reported traumatic etiology in 12 cases (85.7%) cases while in 2 cases (14.3%) the predisposing factors were chronic sinusitis and vestibulitis due to uncontrolled diabetes mellitus.¹²

CONCLUSION

Early diagnosis and quick surgical intervention with judicious use of antibiotics with reconstruction of the nasal septum with autologous cartilage graft is the optimum management of nasal septal abscesses.

In the growing child, reconstruction of partially or completely destructed septal cartilage is essential for normal development of the nose and maxilla. To achieve a successful long-term functional and esthetic postoperative result, the implant material should provide sufficient support function and should be able to grow between the mucoperichondrium layers. Autologous cartilage grafts of the auricle or rib are, so far, the implant materials of choice in line with current medical practice to achieve these goals. Ideally restoring the septum with a single large cartilaginous implant is better than with multiple smaller grafts.

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