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Case report: management of nasal septal deviation with endoscopic septoplasty

A Santosa^{1*}, D Permatasari² and IBS Putera²

¹ Faculty of Medicine and Health Sciences, Universitas Warmadewa, Bali, Indonesia

² Kapal District Hospital, Mangupura, Bali, Indonesia

*omangbabe@gmail.com

Abstract. Septoplasty is a surgical procedure to alter the shape or position of a crooked septum by repairs its cartilaginous and bony part. Conventional septoplasty is performed under surgeon's bare eyes and headlights guidance that can give a poor visualization. The operator often had difficulty in evaluating the most severe part of the septum deviation. It also results in excessive bone resection making it difficult to revise. In 1991 Stammberger applied endoscopic techniques to deal with nasal septal abnormalities which then led to the study of its effectiveness, which stated that this technique could visualize the nasal septum under enlargement of the video monitor so that it is helpful in dealing with posterior septal deformities and is more effective during teaching. In this article we present a case report of 23 years old woman with deviated septum whom underwent endoscopic septoplasty and has a good result without complication.

1. Introduction

It is estimated that 75% -85% of the world's total population has deformed nose anatomy and the most common deformity is septum deviation. A study at Pakistan in 2011 of patients with nasal septal deviation found that 88% of the cases occurred in males and 12% in females. This study also found that 76% of the cases was caused by trauma and 24% caused by trauma at birth [1-3]. The diagnosis of septum deviation is based on clinical symptoms, physical examination and other investigation, such as nasoendoscopy, sinus X-ray, CT-Scan, Rhinomanometry, and Acoustic Rhinometry. Those investigations can assess the anatomical structure of the nose, the resulting nasal congestion, as well as the complications of septum deviation [4-6].

The management of septum deviation is highly dependent on the complaints and complications and in some cases an operative procedure is required to correct the septum deviation to improve the function of the nose as well as for esthetic purposes [3, 6, 7]. Septoplasty is a surgical procedure to alter the shape or position of a crooked septum by repairs its cartilaginous and bony part. Conventional septoplasty is performed under surgeon's bare eyes and headlights guidance that can give a poor visualization. The operator often had difficulty in evaluating the most severe part of the septum deviation. It also result in excessive bone resection making it difficult to revise [3-5]. Currently, however, septoplasty has been done under endoscopy guidance. Given the considerable benefits of endoscopic septoplasty, in this case report we present a case of 23-year-old female with septum deviation who has undergone endoscopic septoplasty.



2. Case report

A 23 years old woman came to ENT Polyclinic complained nasal congestion since 2 years ago. Patients also complain of frequent colds and headaches. She does not have symptoms like sneezing repeatedly, nosebleeds, buzzing ears, but she has difficulty in smells. The patient has normal vital signs. At ENT examination the ear and throat within normal limit, but at anterior rhinoscopy, we found both sides of nasal cavity are narrow; the mucosa is normal, inferior turbine hypertrophy, no secretions and a deviated septum to the right. On nasoendoscopic examination, we found both sides of nasal cavity are narrow; the mucosa is normal, minimum secretions, septum deviation to the right, inferior turbine hypertrophy and no visible secretions in the medial meatus. A CT scan was performed with result of nasal septum deviation and inferior turbinates hypertrophy.

The patient underwent endoscopic septoplasty with general anesthesia at April 5th, 2018. The laboratory examination and thorax plain X-ray was performed with results within normal limits. After the procedure, splint then attached to both sides of septum and anterior tampon was also applied on both sides of the nose that was maintained for 2 days. The patient was given cefotaxime as antibiotic 1 gram twice daily (IV) and ketorolac 30 mg every 8 hours (IV). The anterior tampon and splint was detached at ENT Polyclinic on April 7th, 2018. No complication found and outpatient care was given.

At the follow up on April 10th, 2018, the patient was complaining nasal congestion and has mucus mixed with a little blood strikes occasionally. At anterior rhinoscopic examination there was crusts inside nasal cavity, which was removed. Then the medication was continued with cefixime 100 mg twice daily intra oral, paracetamol 500 mg every 8 hours intra oral and nasal washing with normal saline 3 times daily. On April 15th, 2018 the patient has no complain and on the anterior rhinoscopy appears normal with no visible crusts.



Figure 1. Patient's CT scan shows nasal septum deviation to the right.

3. Discussion

A 23-year-old female patient with septal deviation has been reported. According to the literature, ratio of male and female patient with septum deviation as stated in a study by Janardhan et al is 69:31 respectively, where most of these incidents found in patients aged 20-40 years. The higher incidence rate in men is related to the etiology of septum deviation, which is largely due to trauma that often occurs in men. While in a study by Codrut Salafoleanu et al obtained a low correlation between the age and the septum deviation type [4, 8, 9].

Mladina, in 1987 determined the classification of septal deviation into 7 types. Some of the types can sometimes only be evaluated by nasal endoscopy examination only, due to the deviation is located in the posterior part. Based on the physical examination on the patient, it appears that the deviation of nasal septum was the type 3 according to Mladina's classification. This type is a septal deviation in the posterior part of the septum with incidence rate is about 15.7%. Aziz and Yoseum also found that the greater the degree of septal deviation and the more horizontal the deviation to uncinatus process plane, the higher rate of sinusitis occurs as complications. It is mentioned that type 3, type 5, and type 7

deviations are the most common form of deviation found in patients with chronic sinusitis, where type 5 deviation has the highest risk of chronic rhinosinusitis [4, 10, 11].

Patients reported suffering from nasal congestion and headache for a long period of time. This was supported by Janardal et al. who suggested that nasal congestion were the most common complaint in patients with nasal septal deviation, followed by nasal secretions and headache. It was also mentioned in the study of Codrut Salafoleanu et al. that patients with septum deviation came with nasal congestion (85%), headache (50%), post-nasal drip (28%) and throat pain (22%) [12, 13].

A study by Sedaghat AR, et al in 2013 states that a physical examination of anterior rhinoscopy and nasoendoscopy is the most accurate examination in diagnosing septum deviation. However, this examination does not provide data or objective figures of nasal obstruction and may cause patient discomfort during the application of an adrenaline tampon as decongestion prior to examination.^{31,32} CT Scan can provide an accurate three-dimensional picture of the septum deviation, but this examination is more useful in the examination of pathological abnormalities in the nose such as sinusitis than only to check septum deviation. Although very useful, CT scan expose patient to radiation and the cost of examination is relatively expensive [3, 14].

A study from the American Academy of Otolaryngology-Head and Neck Surgery in 59 patients underwent septoplasty found that only 6% of those patients were not satisfied with the outcome of surgery after 3 and 6 months and the remaining 94% of patients reported improvement of nasal congestion at 6 months after surgery. A study by Gandomi et al on 86 patients underwent septoplasty with the same method also reported that 89.5% of the patient reports improvement of nasal congestion. Study from Constantine, et al. indicates a significant association between the location of deviation and post-operative clinical improvement. In this study stated that patients with deviation in the anterior section had better clinical improvement than posterior deviation. Based on Sindhvani & Wright's research, endoscopic septoplasty is the right choice to treat isolated spina where 54% of patients with nasal obstruction and facial pain were well recovered, and 38% indicate improvement. According to Harley et al, patients with nasal obstruction and headaches were improved significantly in the endoscopic septoplasty group compared to the conventional septoplasty group [15, 16].

The endoscopic technique provides advantages over standard headlamps. The advantages include adequate visualization under direct light, shorter operation duration, assisting in the diagnosis and treatment of posterior septal deformity, providing better access to the meatus media space for FESS and providing excellent teaching tools when used in conjunction with monitors and recording video. There are three major complications of surgical correction of the septum: imperfect septum correction, perforation of the septum and outer nasal deformity. Carey et al divides the complications of septoplasty into early complications and late complications. Hematoma, pain, infection, cerebrospinal fluid leakage and bleeding are classified as early complications, whereas septal perforation, saddle nose, remaining deviations, nasal valve collapse, and necrosis are classified as late type complications [14, 16-19]. However, in this patients there is no complication present post endoscopic septoplasty.

4. Conclusion

Septum deviation is a crooked or curvy septum that commonly caused by congenital abnormalities, malignancy, trauma, infection and genetic disorders. The diagnosis of septal deviation can be established based on clinical symptoms, physical examination or investigation. There are several indications in performing endoscopic septoplasty to correct septal deviation such as septal deviation with partial or total nasal obstruction, obstruction by septum deviation that hinder FESS, continuous or relapsed epistaxis, and to improve the effectiveness of therapy in patients with OSAS. Advantages of endoscopic septoplasty include adequate visualization, shorter duration of surgery, aids in the diagnosis and treatment of posterior septal deformity, better access to the meatus media space for FESS and provides excellent teaching tools when used in conjunction with monitor and video recording.

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