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ORIGINAL ARTICLE

Evaluation of pre- and post-pyriform plasty nasal airflow[☆]

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KEYWORDS

Nasal obstruction;
Rhinomanometry;
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Abstract

Introduction: Nasal obstruction is a frequent complaint in otorhinolaryngology outpatient clinics, and nasal valve incompetence is the cause in most cases. Scientific publications describing surgical techniques on the upper and lower lateral cartilages to improve the nasal valve are also quite frequent. Relatively few authors currently describe surgical procedures in the pyriform aperture for nasal valve augmentation. We describe the surgical technique called pyriform plasty and evaluate its effectiveness subjectively through the NOSE questionnaire and objectively through the rhinomanometry evaluation.

Objective: To compare pre- and post-pyriform plasty nasal airflow variations using rhinomanometry and the NOSE questionnaire.

Methods: Eight patients submitted to pyriform surgery were studied. These patients were screened in the otorhinolaryngology outpatient clinic among those who complained of nasal obstruction, and who had a positive response to Cottle maneuver. They answered the NOSE questionnaire and were submitted to preoperative rhinomanometry. After 90 days, they were reassessed through the NOSE questionnaire and the postoperative rhinomanometry. The results of these two parameters were compared pre- and postoperatively.

Results: Regarding the subjective measure, the NOSE questionnaire, seven patients reported improvement, of which two reported marked improvement, and one patient reported an unchanged obstructive condition. Regarding the rhinomanometry assessment, of 96 comparative measurements between the preoperative and postoperative periods, we obtained 68 measurements with an increase in nasal airflow in the postoperative period, 26 negative results, and two cases that remained unaltered between the preoperative and postoperative periods.

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PALAVRAS-CHAVE

Obstrução nasal;
Rinomanometria;
Rinometria acústica

Conclusion: When analyzing the results obtained in this study, we can conclude that the piriform plasty surgical procedure resulted in nasal airflow improvement in most of the obtained measurements.

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Avaliação do fluxo aéreo nasal pré e pós-piriformeplastia**Resumo**

Introdução: A obstrução nasal é queixa frequente nos ambulatórios de otorrinolaringologia, e a incompetência da válvula nasal é responsável em grande parte dos casos. É bastante frequente também as publicações de trabalhos científicos descrevendo técnicas cirúrgicas sobre as cartilagens laterais superiores e inferiores para melhorar a válvula nasal. Relativamente poucos autores descrevem atualmente procedimentos cirúrgicos na abertura piriforme para incremento da válvula nasal. Descrevemos a técnica cirúrgica chamada piriformeplastia e avaliamos a sua eficácia de forma subjetiva através do questionário NOSE e de forma objetiva através do exame rinomanometria.

Objetivo: Comparar as variações do fluxo aéreo nasal pré e pós-piriformeplastia através da rinomanometria e do questionário NOSE.

Método: Foram estudados 8 pacientes que foram submetidos à piriformeplastia. Estes pacientes foram triados no ambulatório de otorrinolaringologia, pacientes estes que se queixavam de obstrução nasal, e que apresentavam resposta positiva a manobra de Cottle. Responderam ao questionário NOSE e foram submetidos a rinomanometria no pré-operatório. Após 90 dias foram reavaliados pelo questionário NOSE e pela rinomanometria pós-operatória. Os resultados desses dois parâmetros foram comparados pré e pós-operatoriamente.

Resultados: Em relação a medida subjetiva, questionário NOSE, sete pacientes referiram melhora, sendo que dois deles referiram melhora acentuada, e um paciente referiu quadro obstrutivo inalterado. Em relação ao exame rinomanometria, de 96 medidas comparativas entre o pré e o pós-operatório, obtivemos 68 medidas com incremento ao fluxo aéreo nasal no pós-operatório, 26 resultados negativos, e dois casos inalterados entre pré e pós-operatório.

Conclusão: Pela análise dos resultados obtidos neste trabalho, podemos concluir que o procedimento cirúrgico piriformeplastia conferiu melhora do fluxo aéreo nasal na maioria das medidas obtidas.

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Introduction

Nasal obstruction is a common complaint in the general population. It is defined as a discomfort characterized by the feeling of insufficient airflow through the nose. The sensation of airflow obstruction through the nose can be one of the most severe symptoms of nasal disease. The degree of nasal obstruction causing symptoms is determined not only by the severity of the obstruction, but also by the subjective perception of nasal airflow obstruction.¹

The nose, being the upper airway entrance along with its multiple functions, such as the airflow trajectory, a chemical sensor, and air conditioner, is the first line of defense against infections. In humans and mammals, the nose is divided into two distinct anatomical pathways, and each has its own blood supply and innervation. The nasal septum divides the nose into two cavities and these consist of a bony portion and a cartilaginous portion. The lateral wall of each of these

cavities basically consists of three turbinates protruding into the nasal cavity.²

The nasal valve is comprised of four structures. Two components are anatomical: the angle formed between the upper lateral cartilage and the septum, and the lateral diameter of the pyriform aperture. Two components are mucovascular: the head of the inferior turbinate, which is an erectile tissue, as well as the mucous tissue of the caudal septum, located dorsally to the inferior turbinate. Narrowing of the pyriform aperture and congestion of the erectile tissue of the lateral wall, especially of the inferior turbinate, associated with septal deviations, determine resistance to nasal airflow.³

In a study that analyzed 88 noses of Korean individuals, mean values of 30.1 mm were found for men and 28 mm for women, transversally at the level of the pyriform aperture. The shape and size of the pyriform aperture exert a significant impact on the nasal breathing effectiveness. The size

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