

RINGKASAN

PENGARUH DEVIASI SEPTUM NASI TERHADAP WAKTU TRANSPOR MUKOSILIAR DAN HISTOLOGI MUKOSA KAVUM NASI

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Deviasi septum nasi menyebabkan penyempitan hidung sehingga mengganggu fungsi fisiologis hidung dan mempengaruhi terjadinya proses inflamasi pada kavum nasi. Waktu transpor mukosiliar yang meningkat merupakan tanda mulai terjadinya proses inflamasi. Proses inflamasi pada mukosa nasal dapat ditunjukkan dengan perubahan secara histologis. Perubahan tersebut dapat terjadi pada kedua sisi mukosa hidung. Deviasi septum nasi menyebabkan inflamasi mukosa kronik dan metaplasia sel skuamous yang rentan menimbulkan rinosinusitis kronis (RSK).

Penelitian ini bertujuan untuk membuktikan pengaruh deviasi septum nasi terhadap waktu transpor mukosiliar dan histologi mukosa kavum nasi. Pengumpulan sampel penelitian dilaksanakan pada bulan September hingga November 2019 di URJ THT-KL Divisi Rinologi dan Divisi Plastik Rekonstruksi Maksilofasial RSUD Dr. Soetomo Surabaya. Penelitian yang dilakukan merupakan *observasional analytic* dengan pendekatan *cross sectional*. Pengambilan sampel dilakukan secara *consecutive sampling* dan didapatkan sepuluh sampel. Semua sampel penelitian menjalani pemeriksaan waktu transpor mukosiliar dan pemeriksaan histologi terhadap jaringan operasi septoplasti dan konkotomi di Instalasi Patologi Anatomi RSUD Dr. Soetomo Surabaya. Uji statistik untuk menganalisis deviasi septum nasi terhadap waktu transpor mukosiliar menggunakan uji *paired samples t-test*. Sedangkan analisis pengaruh deviasi septum nasi terhadap histologi mukosa kavum nasi yaitu tingkat infiltrasi limfosit dan metaplasia sel skuamous digunakan uji *Wilcoxon signed ranks test*. Tingkat kemaknaan hasil uji statistik adalah  $p < 0,05$ .

Hasil penelitian didapatkan sampel jenis kelamin laki-laki lebih banyak dibandingkan perempuan yaitu enam (60%) dibanding empat (40%) penderita. Penderita terbanyak usia 21-30 dan 31-40 tahun yaitu 3 (30%) penderita. Tipe deviasi septum nasi yang paling banyak didapatkan adalah tipe tiga yaitu empat (40%) penderita.

Rerata waktu transpor mukosiliar sisi ipsilateral adalah 16,156 (SD  $\pm 0,545$ ) sedangkan sisi kontralateral lebih panjang yaitu 16,384 (SD  $\pm 0,429$ ). Uji statistik terhadap waktu transpor mukosiliar didapatkan nilai  $p = 0,262$ . Nilai tersebut menunjukkan waktu transpor mukosiliar pada kedua sisi kavum nasi dengan deviasi septum nasi adalah tidak berbeda bermakna. Kedua sisi kavum nasi dengan deviasi septum nasi menunjukkan pemanjangan waktu transpor mukosiliar. Berdasarkan uraian tersebut maka hipotesis penelitian pertama terbukti.

Tingkat jumlah limfosit pada sisi ipsilateral dan kontralateral deviasi septum nasi hampir semuanya adalah tingkat tiga yaitu banyak dan menyebar. Uji statistik membandingkan tingkat jumlah limfosit antara sisi ipsilateral dan kontralateral deviasi didapatkan nilai  $p = 0,317$ . Nilai tersebut menunjukkan tingkat jumlah limfosit antara sisi ipsilateral dan kontralateral deviasi tidak didapatkan perbedaan yang bermakna. Kedua sisi mukosa kavum nasi dengan deviasi septum nasi didapatkan peningkatan infiltrasi limfosit. Berdasarkan hasil tersebut maka hipotesis penelitian kedua untuk infiltrasi limfosit terbukti.

Pada sisi ipsilateral dan kontralateral deviasi septum nasi didapatkan hasil hampir semua sampel tidak didapatkan metaplasia sel skuamous. Uji statistik dengan didapatkan nilai  $p = 0,317$  pada sisi ipsilateral dan  $p = 1,0$  pada sisi kontralateral. Nilai tersebut menunjukkan bahwa metaplasia sel skuamous pada kedua mukosa kavum nasi dengan deviasi septum nasi adalah tidak berbeda bermakna. Berdasarkan uraian tersebut maka hipotesis penelitian kedua untuk metaplasia sel skuamous tidak terbukti.

Kesimpulan penelitian ini adalah deviasi septum nasi mempengaruhi waktu transpor mukosiliar dan histologi mukosa kavum nasi. Deviasi septum nasi mempengaruhi tingkat infiltrasi limfosit pada mukosa kavum nasi di kedua sisi tetapi tidak mempengaruhi terjadinya metaplasia sel skuamous pada mukosa kavum nasi.

**SUMMARY**

**THE EFFECT OF NASAL SEPTUM DEVIATION ON MUCOCILLIARY TRANSPORT TIME AND HISTOLOGY OF NASAL MUCOSA**

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Deviation of the nasal septum causes nasal constriction and disrupts the physiological function of the nose then influences the inflammation process in the nasal cavity. The increased of mucociliary transport time is a sign onset of the inflammatory process. The inflammatory process in the nasal mucosa indicated by histological changes. These changes can occur on both sides of the nasal mucosa. Nasal septum deviation causes chronic mucosal inflammation and squamous cell metaplasia which is prone to cause chronic rhinosinusitis (CRS).

The aim of this study is to prove the effect of nasal septum deviation on mucociliary transport time and histology of nasal mucosa. The sample collection was carried out in September to November 2019 at Outpatient Unit Division of Rhinology and Plastic-Maxillofacial Reconstruction of Otorhinolaryngology Head and Neck Surgery (ORL-HNS) Dr. Soetomo General Hospital Surabaya. The research conducted was observational analytic with cross sectional approach. Sampling was done by consecutive sampling and obtained ten samples. All study samples underwent examination of mucociliary transport time and histological examination of septoplasty and conchotomy tissue operations at the Anatomical Pathology Installation of Dr. Soetomo General Hospital Surabaya. Statistical tests to analyze the effect of nasal septum deviation on mucociliary transport times using paired samples t-test. While the analysis of the effect of nasal septum deviation on the histology of the nasal mucosa, the level of lymphocyte infiltration and squamous cell metaplasia, using Wilcoxon signed ranks test. The level of significance of the statistical test results was  $p < 0.05$ .

The results showed that there were more male sex samples than women, namely six (60%) compared to four (40%) patients. Most patients aged 21-30 and 31-40 years, 3 (30%) sufferers. The most common type of nasal septum deviation was type 3, which was 4 (40%) patients.

The mean mucociliary transport time of the ipsilateral side was 16.156 (SD  $\pm 0.545$ ) while the contralateral side was longer at 16.384 (SD  $\pm 0.4429$ ). Statistical test on mucociliary transport time obtained p value 0.262. This value shows that the time of mucociliary transport on both sides of the nasal cavity with septum deviation was not significantly different. Both sides of the nasal cavity with septum deviation show prolongation of the mucociliary transport time. Thus the first research hypothesis was proven.

The levels of lymphocytes infiltration on the ipsilateral and contralateral side of deviation are almost all grade 3, which are numerous and spread. Statistical tests comparing the level of lymphocyte counts between the ipsilateral and contralateral side of deviation showed p value 0.317. This value indicates the level or grade of lymphocyte counts between the ipsilateral and contralateral side of deviation found no significant difference. Both sides of the nasal cavity mucosa with deviation of the nasal septum resulted in increased of lymphocyte infiltration. Thus the second research hypothesis for lymphocyte infiltration is proven.

The ipsilateral and contralateral side of deviation showed that almost all samples are not found any squamous cell metaplasia. Statistical test found p value 0.317 on the ipsilateral side and 1.0 on the contralateral side. This value indicates that squamous cell metaplasia in both nasal cavity with septum deviation is not significantly different. Thus the second research hypothesis for squamous cell metaplasia is not proven.

The conclusion of this study is the nasal septum deviation affects the mucociliary transport time and histology of the nasal mucosa. Deviation of the nasal septum affects the level of lymphocyte infiltration on the nasal mucosa on both sides, however there was no effect on the occurrence of squamous cell metaplasia on the nasal mucosa.

## ABSTRACT

**Objective :** Deviation of the nasal septum causes nasal constriction and influences the inflammation process in the nasal cavity. The increased of mucociliary transport time is the onset of the inflammatory process and indicated by histological changes on both sides of the nasal mucosa. Nasal septum deviation causes chronic mucosal inflammation and squamous cell metaplasia which is prone to cause chronic rhinosinusitis (CRS).

**Methods :** Research conducted at Outpatient Unit Division of Rhinology and Plastic-Maxillofacial Reconstruction of Otorhinolaryngology Head and Neck Surgery Dr. Soetomo General Hospital Surabaya in September to November 2019. The research conducted was observational analytic with cross sectional approach and obtained 10 samples. All study samples underwent examination of mucociliary transport time and histological examination of septoplasty and conchotomy tissue operations. Analysis of the effect nasal septum deviation on mucociliary transport time using paired samples t-test and the effect on histology of the nasal mucosa using Wilcoxon signed ranks test.

**Result :** The mean of mucociliary transport time of the ipsilateral side was 16.156 (SD  $\pm$ 0.545) while the contralateral side was longer at 16.384 (SD  $\pm$ 0.4429). Statistical test on mucociliary transport time obtained p value 0.262. Statistical tests comparing the level of lymphocyte counts between the ipsilateral and contralateral side of deviation showed p value 0.317. Statistical test comparing the occurrence of squamous cell metaplasia found p value 0.317 on the ipsilateral side and 1.0 on the contralateral side.

**Conclusion :** Nasal septum deviation affects the mucociliary transport time and histology of the nasal mucosa. Deviation of the nasal septum affects the level of lymphocyte infiltration on the nasal mucosa on both sides, however there was no effect on the occurrence of squamous cell metaplasia on the nasal mucosa.

**Key words :** Nasal septum deviation, mucociliary transport time, nasal mucosa histology