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Effect of sinus swelling of maxillary sinus cyst of nasal mucosa cilia

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ABSTRACT

Objective: To investigate the sinus swelling side effect on maxillary sinus cyst of nasal mucosa cilia. **Methods:** 34 cases of maxillary sinus cyst patients (treatment group), mean age (25.5 ± 2.2) years old; the control group was 30 healthy persons, the average age was (31.8 ± 9.1), treatment group oral sinus Xiaozhong decoction, and the control group before treatment, 30 days to observe the variation of ostiomeatal complex mucociliary group before and after treatment. The nasal mucosa of maxillary sinus mucosa around the mouth, immediately after collection in 2.5% glutaraldehyde solution, and stored in the 40° refrigerator. Then use the saccharin test measuring nasal mucociliary transport rate (Mucociliary transport rate, MTR), statistically compared with the healthy group and treatment group before and after the ostiomeatal complex mucociliary change. **Results:** The two groups by saccharin test measuring nasal mucociliary transport rate (Mucociliary transport rate, MTR) detection: healthy group 30 cases, MTR (mm/min) 8.18 ± 2.29 before treatment, the treatment group 34 cases, MTR (mm/min) 4.06 ± 1.24 (with the healthy group: P < 0.05), after treatment in 34 cases, MTR (mm/min), 8.13 ± 2.15 (P < 0.01 compared with before treatment); treatment group and healthy group (P > 0.05). **Conclusion:** Sinus swelling can improve the maxillary sinus cyst with nasal mucociliary function, reduce inflammation of maxillary sinus.

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KEYWORDS

Sinus swelling;
Maxillary sinus cyst;
Cilia;
Nasal complex.

INTRODUCTION

Maxillary sinus cyst is a common and otolaryngology disease. Its etiology mainly is mucous congestion, glandular secretion retention. Due to inflammation or allergic reaction, the slurry retention capillary exudation

from the submucosa connective tissue. Gland mouth mucous gland inflammation and allergic reaction caused accumulation of mucus plugging, gland enlargement is submucous cyst of maxillary sinus occurrence, development mechanism^[9]. Local inflammation of ostiomeatal complex mucociliary function, the function of cilia of

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nasal mucosa is normal or not, is closed with the nasal inflammation^[13]. Therefore, reducing the local inflammatory reaction, and improving the ostiomeatal complex mucociliary function on the prevention and treatment of maxillary sinus cyst development will play a positive role. We summarized and varied of ostiomeatal complex mucosa cilia before and after the application of sinus swelling. Preliminary reports are as follows:

MATERIALS AND METHODS

General information

A total of 34 patients with maxillary sinus cyst were included in our study, from 2009 June to 2012 October in our hospital. 34 cases were in the treatment group, 22 males, 12 females; age ranged from 12 to 46 years old, average age (25.5±2.2) years old; 30 cases with unilateral lesions, 4 cases with bilateral lesions; 26 patients with headache, blurred vision, medical history, 4 cases without any symptoms; the control group of 30 cases, male 20, female 10, aged from 14 to 49 years old, the average (31.8±9.1) years old, healthy physical examination personnel and hospital internship, eliminate chronic rhinosinusitis, nasal septum partial song. Routine coronal CT scanning diagnosed.

Criteria

(1) mainly occurred unilateral maxillary sinus; (2) the symptoms accompanied by headache, dizziness, facial swelling or discomfort, accompanied by nasal intermittent overflow light yellow liquid; (3) maxillary sinus puncture with pale yellow liquid overflow. (4) half shadow limited uplift clear boundary of unilateral maxillary sinus CT examination.

Treatment method

The treatment group oral nasal swelling, its composition: Astragalus 20g, Atractylodes 20g, Magnolia 10g, angelica, 10g, Chuanxiong Fangfeng 10g chrysanthemum 10g mint 10g, Xanthium 15g, daily 1 agent, water frying clothing, two times service.

According to the Chinese medicine dialectical, add 1-3, No.1 party the Yinxu Zaore plus (gypsum 10g, Anemarrhena 10g, Coptis chinensis 10g, Radix

Scrophulariae 10g); deficiency of both qi and Yin with No. 2 (from Radix 10g, Ophiopogon japonicus 10g, trichosanthin 10g); virtual two Yin and Yang with No. 3 (10g by epimedium, Radix Aconiti Lateralis Preparata 10g, cinnamon 5g, medlar 10g, Morinda officinalis 10g)

The above treatment groups, groups before and after treatment for 30 days to observe the ostiomeatal complex mucociliary change control. Comparison and statistical.

THE OBSERVATION INDEX AND TEXT METHOD

Nasal mucosa taken

Before treatment and after 30 days from the maxillary sinus mucosa around the mouth, immediately after collection in 2.5% glutaraldehyde solution, and stored in the 40 refrigerator.

Test methods

Saccharin test measuring nasal mucociliary transport rate (Mucociliary transport rate, MTR): the^[7] method by the same examiner and introduced by Ni Liyan etc, clear nasal discharge, the saccharin in 0.5cm diameter of inferior turbinate mucosal surface back tip of about 0.5cm, swallowing movements to 2 times the speed of min-1 subjects record to the mouth, nasal cavity into the self saccharin feel sweet time, namely the nasal mucociliary swing time (min). With fine applicator consists of anterior naris light inserted into the posterior pharyngeal wall, measure the placement of saccharin to posterior pharyngeal wall distance (mm), the two phase is the mucociliary transport rate (MTR). The laboratory temperature control in 18~300°C, relative humidity control in between 55%~70%, before the test, patients should be in the environment. For 30mins. The experimental groups were evaluated before and after each 30mins measured 1 time.

Statistical method

Use spss11.0 statistical software to analyze the results. Measurement date is expressed by mean standard deviation ($\bar{x} \pm s$); mean comparisons between groups uses "t" test. With P<0.05 was with significant difference.

RESULTS

Nasal endoscopy surgery groups 3 months later after surgery

There is a big difference between the treatment groups and the control groups on the results of saccharin test ($p < 0.05$).

TABLE 1 : Results of saccharin test ($\bar{x} \pm S$)

Group	n	MTR (mm/min)
Health group (control group)	30	8.18±2.29
Treatment group (before treatment)	34	4.06±1.24
After treatment (after treatment)	34	8.13±2.15

The treatment group before treatment with the health group: $p < 0.05$; the treatment group and the treatment before $p < 0.01$; treatment group and health group $P > 0.05$.

DISCUSSION

The relationship between maxillary sinus cyst and inflammation: maxillary sinus cyst for sinus mucosa cyst, mainly in the bottom and the inner wall, such as the department of mucinous glands secretion caused by obstruction, retention, which was called mucus retention cyst: inflammation, capillary oozing slurry retention in the submucosa, gradually dilated cyst formation, called serous cyst^[5]. There is a report that maxillary sinus, maxillary sinus mucosa cyst can occur in the wall of sinus cavity, to be multiple, chronic inflammation, polyps and polypoid hyperplasia associated with sinus mucosa, accounting for about 42.4%^[11]. There are a lot of chronic inflammation and sinus mucosa cyst. Chronic inflammation of nasal mucociliary transporting system function, function of nasal mucosa cilia system abnormality or disease exists, it is not easy to remove nasal sinus bacterium, leading to chronic inflammation. Whether the existing of chronic inflammation of nasal mucosa and the nasal mucociliary normal function is closely related. Therefore, there is a certain correlation between them.

Improving the function of cilia nasal sinus mucosa is one of the important criteria for formation control of maxillary sinus cyst: mucosa of nasal cavity and paranasal sinus cilia are mainly composed of pseudostratified ciliated columnar epithelium cells. The number of ciliated

columnar cells less, scattered in the ciliated cells, which ensure the most complex regional structure the nasal cavity. The ostiomeatal complex in the secretions can regularly discharged from front to back. When a certain cause of ostiomeatal complex is not smooth blocking, it can cause ischemia hypoxia in the nasal cavity paranasal sinus cilia, cilia movement disorder, or even stop. Mucosal cilia transport function is impaired, resulting in bacterial virus propagation in the sinus cavity the persistent, chronic inflammation. And only after the release of ostiomeatal complex congestion, improving the recovery of nasal cavity and paranasal sinus normal ventilation and drainage, it is possible that nasal mucous membrane has a benign environment, letting the cilia function of nasal cavity was normal delivery, and removing nasal paranasal sinus mucosa long-standing inflammatory state.

Sinus swelling side is consisted of: sinus swelling with purging heat, anti-inflammatory, promoting blood circulation, fragrant Tongqiao effects, mainly composed of Radix Astragali, Rhizoma Atractylodis Macrocephalae, windproof, asarum, Magnolia, angelica, chuanxiong, chrysanthemum, mint, Xanthium sibiricum, stone coriander. Astragalus is Buzhong Yiqi of traditional Chinese medicine, containing astragalus saponins, polysaccharides and many kinds of trace elements (Zn, Mg, Cu, Se), and is a regulator of Chinese patent medicines which has the function of improving immunity^[4], Baizhu is the dry Rhizoma Atractylodes, Compositae perennial herbs of Atractylodes macrocephala. Bitter, sweet, warm in nature; the spleen, stomach; for Spleen Qi, dampness and water used to medicine, compatibility of Astragalus and Atractylodes macrocephala could enhance the benefits of water swelling, spleen qi, Wei solid form etc., the wind can disperse wind, and the wind stop sweat^[8,14]. Xinyi can play a role in casualing cold, stuffing nose, which contains volatile oil, and has analgesic, sedative effect, shrinking the blood vessels in the nasal cavity, and reducing the nasal secretion sticky tears. Fructus Xanthii, mint, chrysanthemum, asarum has antibacterial, anti-inflammatory, anti allergy, relieve nasal relieve nasal congestion. Astragalus membranaceus has detumescence role, which can promote reepithelization operation. Shi Husui has Qingrejiedu role, can promote mucosal regeneration. Angelica has the blood circulation, enhance immunity, Rhizoma

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Chuanxiong, expelling wind and relieving pain, and can promote the transformation of hyperplastic lesions and absorption^[1-3,6,10].

Effect of sinus swelling of nasal mucosa cilia: according to nasal cilia transmission time report of normal people was $14.9 + 8.4$ minutes, ciliary beat frequency (CBF) was 9.5 ± 1.7 H. A lot of studies found that not cilia beat frequency faster, better transport function of cilia cilia. If the swing is disordered swing the cilia, the movement of the system is not good, but sometimes very poor. Therefore, evaluating the cilia movement from the ciliary movement rate function is more meaningful, function evaluation method of cilia in clinic include saccharin test^[12], saccharin, experiments have been used for many years in clinic for its simple, sensitive reliable, being the most widely mucociliary transporting system application currently. Based on the maxillary sinus cyst were observed before and after application of saccharin test, nasal swelling side and the healthy comparison, MTR 4.06 ± 1.24 mm/min in the treatment of maxillary sinus cyst patients, with the healthy people (MTR 8.18 ± 2.29 mm/min) significantly statistical significance ($P < 0.05$), the treatment of maxillary sinus cyst were MTR 8.13 ± 2.15 mm/min, and are much better than those before treatment ($P < 0.05$), sinus swelling that can extract High maxillary sinus cyst with nasal mucociliary function, reducing the maxillary sinus inflammation, prevention and treatment of maxillary sinus cyst ideal development train of thought and method.

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