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Minimally invasive method with nasal endoscopic comparative method in the treatment of maxillary sinus cyst

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ABSTRACT

Objective: Minimally invasive and nasal endoscopic treatment of maxillary sinus cyst comparison of the two methods. **Methods:** The 68 cases of maxillary sinus cyst patients were randomly divided into two groups, Observation group 27 cases: The minimally invasive group; **Control group:** 41 cases were nasal endoscopy group. According to the location of the cyst with these three operation method: (1) Nasal passages in maxillary sinus natural caliber; (2) Inferior meatus fenestration; (3) Middle meatus and inferior meatus combined approaches. The five indexes in two groups were observed in the mean length of hospital stay, the average cost of hospitalization, postoperative complications, postoperative discomfort, patient satisfaction. **Result:** Observation group without hospitalization, in the average hospitalization expenses, postoperative complications, postoperative discomfort, patient satisfaction indicators were better than the control group ($P \leq 0.05$). **Conclusion :** Minimally invasive treatment of maxillary sinus cyst was safe, effective and superior to the control group.

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KEYWORDS

Maxillary cyst;
Minimally invasive;
Nasal endoscopy.

FOREWORD

Maxillary sinus cyst was nasal common diseases and frequently-occurring diseases, early asymptomatic without therapy. Patients with dizziness, headache, swollen cheek, ipsilateral teeth numbness, pain and other symptoms, the need for surgery^[3]. Endoscopic sinus cyst resection was currently the main surgical treatment^[9]. Endoscopic sinus surgery existed the way some of the problems: the destruction of normal anatomy of the nasal sinuses, postoperative reaction heavier, higher

ospitalization costs. To a method of minimally invasive treatment of maxillary sinus cyst. This method was less invasive, less painful, less expensive and effective, suitable for promotion and was reported as follows:

MATERIALS

1 General information

The research object 68 patients with maxillary cysts, 39 males and 19 females; aged 14 to 77 years, mean 47.6 years. Concurrent phases of sinusitis, hypertrophic

FULL PAPER

rhinitis and allergic hypertrophic rhinitis and allergic rhinitis disease in 23 cases, 45 cases of simple submucosal maxillary cyst which multiple cysts in 16 cases, 13 cases of bilateral maxillary cyst.

Diagnostic criteria

All cases were confirmed by CT or MR examination being diagnosed, which 7 patients underwent CT examination confirmed a maxillary cyst, no symptoms, the remaining 61 cases had varying degrees of headache, dizziness, heavy head, the ipsilateral tooth discomfort, facial numbness, nasal intermittent stream yellowish liquid, and other symptoms associated with chronic sinusitis. All patients underwent paranasal sinus CT scan or MR scan, cyst diameter 2.3cm ~ 3.6cm, the average 3.1cm; 55 cases of unilateral, bilateral in 13 cases, 37 cases of anterior maxillary cyst located in the bottom wall of the 12 cases, the outer wall of nine cases.

Exclusion criteria

All patients were excluded from other nasal diseases, parallel routine endoscopic nasal examination, routine laboratory tests, routine iodine allergy test, there was no absolute contraindication for surgery^[6].

METHOD

All the patients were divided into two groups: the first group: different approach excision of maxillary sinus cyst under Nasal Endoscopy group. Operation method is divided into three kinds of path: (1) The middle nasal meatus natural antrum caliber Road (2) Windowing of the inferior nasal meatus Road (3) Middlemeatus and inferior meatus combined road. Group II: Group of minimally invasive treatment of maxillary sinus cyst.

A different approach excision of maxillary sinus cyst under nasal endoscope

1 sets of Germany Storz company production of nasal endoscopy (0° 30° 70°) and sinus operation instrument. According paranasal sinus CT or MRI in the maxillary cyst shown in different positions and concurrent diseases, choose a different surgical approach.

The middle nasal meatus natural antrum caliber

road

1% tetracaine + epinephrine infiltration cotton sheet surface anesthesia of the nasal mucosa, with 1% lidocaine for local anesthesia and mucosal nerve block anesthesia, optional Messerklinger surgical resection uncinat expand natural maxillary sinus ostium. By observing the endoscopic sinus mucosa and the cyst, the removal of diseased tissue.

Windowing of the inferior nasal meatus road

1% tetracaine + epinephrine infiltration cotton sheet surface anesthesia of the nasal mucosa, Anesthesia with 1% lidocaine nasal turbinate and lateral wall of submucosal, the inferior turbinate was fractured and inward shift, you could cut part of the inferior turbinate hypertrophy of the mucous membrane, exposing the inferior meatus. Use maxillary sinus puncture with a cannula in the nasal passages was located at the front end of 1cm into the maxillary sinus puncture, pull out the needle core, the proper angle endoscopic was inserted through cannula. Observed sinus cyst cases, unplug casing, drilling to expand the inferior meatus about 1cm × 1cm, endoscopic resection of the cyst.

Middle meatus and inferior meatus combined approaches

Right from the opening forceps nasal sinus mucosal cysts difficulties could jointly antrostomy pathways cyst forceps under direct vision.

Method of minimally invasive treatment of maxillary sinus cyst

All patients were iodine allergy test before treatment. Intravenous injection to patients Vatican Shadow Po amine whether patients allergic reactions were observed, no allergic reactions in patients who underwent surgery under topical anesthesia or local anesthesia. Cotton + 1% tetracaine hydrochloride adrenaline infiltrates surface anesthesia and/or 2% lidocaine local infiltration anesthesia. Larger cysts or in the maxillary anterior and lateral wall of the cyst select from the nasal passages barbed point into the maxillary sinus puncture. Remove the needle core, using a syringe through the cannula withdrawn cyst fluid, and then pushed into the casing of the amount of patented drugs. If the cyst was small, or in the bottom wall of the maxillary sinus puncture from the nasal passages of the cyst was not

easy to place selected by the lip into the gingival sulcus puncture the cyst, Intracapsular extraction liquid, and then pushed into the casing of the amount of patented drugs. By conventional puncture site was not easy to puncture the cyst, You could choose to place the X-ray-guided puncture again. All patients were without nasal packing and all patients reviewed sinus CT or MRI, one month after surgery.

STATISTICAL ANALYSIS

All data via Excel software arrangement, application of the United States SPSS 11.5 statistical software for analysis. Represent data with measurement data (mean \pm standard deviation). Comparative analysis of randomized block with a one-way ANOVA. Multivariate analysis of variance comparison between multiple samples. Differences with $p \leq 0.05$ as statistically significant meaning, $p \leq 0.01$ for difference statistically had a very significant meaning.

RESULTS

The evaluation criteria

After treatment, patients with headache, dizziness, tooth discomfort above the ipsilateral facial numbness

and other symptoms disappeared. After 1 months follow-up CT scan or MRI, cyst disappeared as the cure standard.

Treatment results

Endoscopic sinus cyst resection group, the average length of stay in patients (6.5 ± 2.1) days, postoperative nasal sinus surgery area require stuffing hemostasis. The average cost of hospitalization was (5570 ± 2.3) million. Probability of postoperative patients with head, eyes hold back inflation flu, nasal congestion, intraoperative pain, soreness of teeth, facial numbness and other symptoms of (94 ± 2.6)%. Probability of postoperative adhesions in varying degrees of nasal complications was (14.7 ± 1.5). Postoperative satisfaction survey satisfactory accounting (85.3 ± 2.9)%, quite satisfactory accounting (14.7 ± 1.5)%; Minimally invasive treatment of maxillary sinus cyst group: Patients without hospitalization, surgery without nasal packing, surgical medical expenses averaged (2100 ± 1.7); Postoperative tooth soreness, pain localized chance (32.4 ± 2.1)%. No postoperative complications such as nasal adhesions, the need for secondary injection has four cases, the probability of (11.8 ± 3.2)%, of patients postoperative satisfaction survey was 100%. (TABLE 1)

TABLE 1 : Two sets of pros and cons comparison table

Grouping	Average hospitalization days (Days)	The average hospital charge (yuan)	Postoperative complications (%)	Postoperative discomfort (%)	Postoperative satisfaction (%)
Control group	6.5 ± 2.1	5570 ± 2.3	14.7 ± 1.5	94 ± 2.6	85.3 ± 2.9
Observer Group	0	2100 ± 1.7	0	32.4 ± 2.1	100
Chi-square value		9.465		8.973	9.632
P		0.05		0.05	0.05

DISCUSSION

After the Department of the maxillary sinus mucocoele opening was blocked, the long-term retention of sinus mucus sinus pressure increased so that the expansion sinus swelling, bone thinning, the formation of cystic mass. Serous cysts maxillary sinuses due to chronic inflammation makes submucosal capillary wall damage, leaking slurry retention within the submucosal loose connective tissue, forming cysts gradually en-

larged^[8]. Maxillary cyst adaptation levy: (1) maxillary cyst or cheek with headache and facial pain, pressure; (2) Nasal often yellowish liquid outflow, affecting the normal working life^[4]. Traditional Caldwell - Luc surgical treatment, although more fully exposed to the maxillary sinus, but greater damage to the patient, bleeding, postoperative facial numbness, cheek swelling and other complications in patients with longer duration of postoperative pain greater degree of^[2]. Endoscopic sinus surgery or natural opening to expand inferior meatus fenestration, there could be some dead on the field of

FULL PAPER

vision, cause some difficulties for surgery^[2]. But the nature of maxillary sinus ostium enlargement cyst excision caused damage to the natural ostium of sinus cilia function. Normally, the maxillary sinus mucosal surface of the cilia from the bottom wall upward movement of the star, Fully expanded maxillary sinus after natural sinus cilia loss of natural ostium, resulting in sinus secretions, airborne viruses, bacteria, allergens overcome all difficulties, leading to sinus infection. Uncinate tail attachment was a key part of the maxillary sinus drainage, nasal endoscopic maxillary sinus augmentation, resulting in a natural drainage of sinus surgery damaged key parts, and even scarring, some ciliated cells could be transformed into squamous cell, resulting in sinus drainage was not smooth, ciliary transport system functions were seriously damaged, leading to severe sinus emptying hampered^[1]. Endoscopic nasal passages fenestration, because in front of a narrow nasal passages, and sinuses endoscopic forceps operation restricted, resulting in tissue could not be completely removed sinus cyst^[5]. Endoscopic sinus natural population expansion through joint inferior meatus window pathway, it was difficult even with every corner angle lens irradiation maxillary sinus, even with irradiation angle lens to achieve the ideal location, the current Endoscopic sinuses instrument reaches the desired position was difficult^[7]. Reported in the literature of endoscopic sinus surgery carried out more and more ways, such as pre-endoscopic surgical approach crypt tears, more fully exposed to the walls of the maxillary sinus, a wider field of vision, but the way the surgeon more demanding strictly, the surgeon needed to have skilled endoscopic nasal anatomy operating skills and knowledge, but surgery was easy to damage the nasal passages under the front of the nasolacrimal duct^[7]. Minimally invasive treatment methods and maxillary cyst Endoscopic sinus cyst excision method compared to minimize the trauma, but did not destroy the normal anatomy of the maxillary sinus and nasal cavity, the full attention of the “structure - Symptoms - Function” relationship. Thus confirming the method had certain advanced in the field of minimally invasive treatment of maxillary sinus cyst, worthy of promotion. From clinical practice, we summarized some lessons: (1) preoperative imaging positioning was very important, positioning was not accurate, it may cause difficulties when the needle into the cyst; (2) after

the position was very important, if the injection of liquid were confirmed by postural drainage to extracapsular may require secondary injection.

CONCLUSION

Minimally invasive treatment methods and maxillary cyst Endoscopic sinus cyst excision method compared to minimize trauma and not disrupt the normal anatomy of the maxillary sinus and nasal cavity, the full attention of the “structure - Symptoms - Function” relationship. Thus confirming the method had certain advanced in the field of minimally invasive treatment of maxillary sinus cyst, worthy of promotion.

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