



A Case of Rhinosclerosis Complicated with Chronic Rhinosinusitis Treated by Plasma Endoscopic Sinus and Literature Review

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Abstract

Objective: To investigate the clinical effect and prognosis of plasma on the treatment of rhinosclerosis.

Methods: A patient with benign tumor of the left nasal cavity and chronic sinusitis was recently treated in our department and was selected as the object. The pathological biopsy was taken to consider the exclusion of scleroderma, and the left nasal cavity tumor resection + left side was performed under the plasma nasal endoscope. Sphenoid sinus opening + left inferior thyroidoplasty, the postoperative symptom improvement, postoperative cavity recovery and postoperative recurrence were analyzed and observed.

Results: The patient's nasal congestion symptoms were significantly improved after operation, and there were no complications and postoperative recurrence.

Conclusion: Plasma endoscopic treatment of rhinosclerosis has the advantages of less trauma, faster recovery and less bleeding, and it is worthy of clinical application.

Keywords: Rhinosclerosis; Plasma; Nasal endoscopy; Chronic sinusitis

Introduction

(Rhinoscleroma) is a chronic inflammatory disease contagious granulomatous lesions, its pathogenic bacteria is a rare form of nasal scleroma *Klebsiella bacillus* [1], this disease occurs in the nose, can spread to the sinuses, soft palate, hard palate, pharynx, larynx, trachea, bronchus and middle ear, it may also occur in the respiratory tract or secondary, so it is also known as respiratory sclerosis. Nasal sclerosis was first described by von Herbra in 1870. The criteria for diagnosis of nasal sclerosis are histopathologic examination, which may have characteristic pathological findings such as Mikulicz cells and Russel bodies, but it may be noncontributory in the early stages of the disease [2]. The disease can be divided into different stages according to different manifestations, including cataract stage, induration stage and scar stage [3]. A case of rhinosinusitis complicated with chronic sinusitis admitted to our department recently is reported.

Materials

A 43-year-old female patient reported that she accidentally found new organisms growing in the left nasal cavity about 2 years ago. However, she did not receive special treatment because she had no obvious symptoms, nasal obstruction, pus discharge, nasal pain and nasal bleeding. About 1 month ago, the patient gradually developed left nasal obstruction and discomfort, with no obvious discharge and nasal bleeding, no fever and headache, no dyspnea, and no obvious sneezing and runny nose. The patient did not receive other diagnosis and treatment.

Plain and enhanced coronal CT of paranasal sinus (Figure 1, 2) showed that the sinus walls of bilateral maxillary sinus, ethmoid sinus, frontal sinus and sphenoid sinus were smooth, and soft tissue shadows were filled in bilateral ethmoid sinus, left maxillary sinus and sphenoid sinus, accompanied by mucosal thickening. No obvious enhancement or damage signs were found on enhanced scan. The nasopharyngeal cavity was normal in shape, and there was no obvious swelling in the surrounding soft tissue. Soft tissue shadow of left nasal cavity with mild abnormal enhancement. Diagnosis: 1. Bilateral ethmoid sinus, left maxillary sinus and sphenoid sinus inflammation; 2. Soft tissue shadow of left nasal cavity with mild abnormal enhancement. Complete

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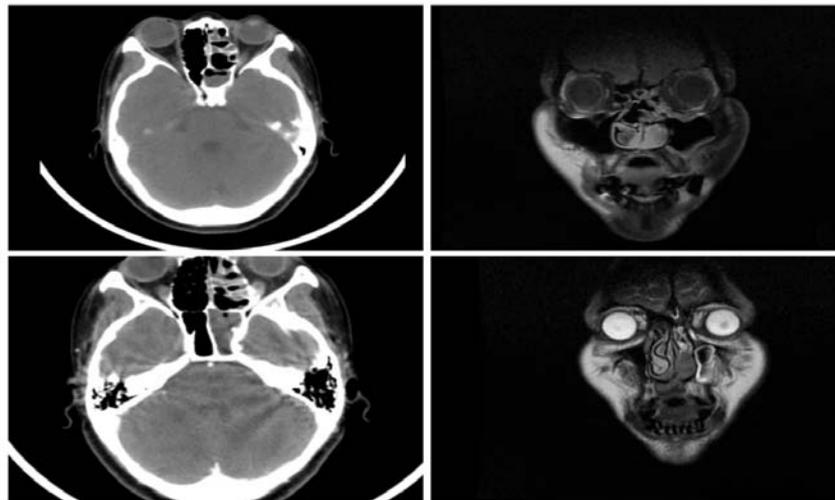
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Figures 1-4: Coronal CT of paranasal sinus (plain and enhanced). Coronal MRI of paranasal sinuses (plain and enhanced).

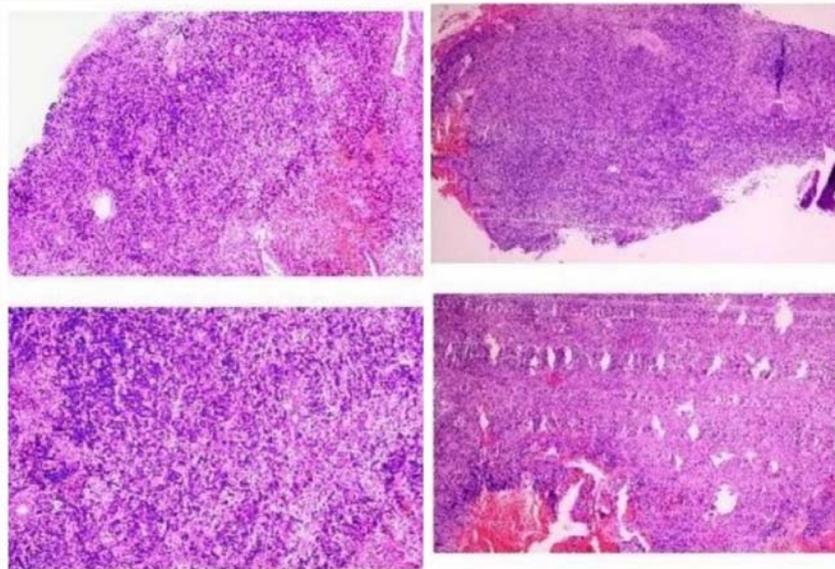


Figure 5 and 6: Lymphocyte, plasma cell and histiocytic infiltration, fibrous tissue hyperplasia (hematoxylin and eosin staining x200).

coronal MRI of paranasal sinus (Figure 3, 4) showed that irregular soft tissue shadows were seen in the nasal passages around the left nasal cavity and inferior turbinate, with slightly longer T1 and T2 signals, which were obviously uniformly enhanced on enhanced scan. The mucosa of the left maxillary sinus, ethmoid sinus and sphenoid sinus was thickened to different degrees. In the sphenoid sinus cavity, there was liquid secretion and local encapsulation, which showed slightly longer T1 and T2 signals. The enhanced scan showed annular enhancement, and no obvious damage was found in the sinus wall bone. Diagnosis: 1. Irregular soft tissue shadows in the left nasal cavity, the nasal passage around the inferior turbinate and the right inferior nasal passage, the nature of which remains to be investigated; [2]. 2. Chronic inflammation of the left maxillary sinus, ethmoid sinus and sphenoid sinus; Sphenoid sinus retention cyst may be present. Preoperative pathological biopsy (2022-07-11) in the left nasal cavity the mass line, pathological diagnosis (Figure 5) makes: (around) On the left side of the nasal mucosa tissue, mucosal epithelial erosion, with inflammatory exudation, lamina propria of lymphocytes, plasma

cells, in fine granulocyte infiltration and see white pigment cells and epithelioid cells, consider mucosal severe chronic inflammation. Xenophobic sclerosis. Other relevant preoperative examinations were improved. On July 13th, 2022, plasma nasal endoscopic resection of left nasal mass under general anesthesia, left sphenoid sinus opening and left lower nail plasty were performed. During the operation, a large number of fish flesh-like neo-organisms were found in the left nasal cavity, with uneven surface and easy bleeding when touched. The base was at the bottom of the nose, and the mass accumulated in the left inferior turbinate. The left nasal cavity mass was taken and sent for disease examination. The left nasal cavity and left inferior turbinate masses were resected with disposable radiofrequency ablation needle (plasma), local electric coagulation was performed to stop blood, no residual mass was checked, and the left inferior turbinate was formed thoroughly. The sphenoid sinus was penetrated above the left hind nostril, and little purulent secretions were found to flow out from the left sphenoid sinus. The sphenoid sinus orifice was fully aspirated and opened, and the sinus cavity was cleared. The left nasal cavity was

tampered with gelatin sponge for hemostasis. The operation process was smooth, with less intraoperative bleeding, and postoperative disease examination showed (Figure 6): (left nasal mass) Nasal mucosa tissue was examined, with more lymphocytes, plasma cells and histiocytic infiltration in the lamina propria, and fibrous tissue hyperplasia, which was considered as sclerosis. During follow-up 14 days after operation, the nasal appearance of the patient was normal, nasal obstruction symptoms disappeared obviously, bilateral nasal ventilation was good, nasal mucosal swelling was not obvious, a small amount of sticky secretions were found in the left nasal cavity, which was cleaned up, no bleeding and mucosal adhesions were observed, the mucosal recovery of the operative cavity was good, no purulent secretions were observed, and no obvious abnormalities were observed in the right nasal cavity. No special discomfort was reported during telephone follow-up 1 month after operation. Two months after the operation, the nasal mucosa of the patient recovered well, no postoperative complications, no recurrence.

Discussion

Nasal scleroma disease for chronic progressive lesions, all over the world have been reported, in Africa, the Middle East and our country is relatively rare, though it is regarded as a relatively rare disease, but it's in some environmental health is poor and backward country is endemic disease, this may be related to individual and immunity, nutritional status and related factors such as environmental health. The disease may also be associated with persistent rhinitis. Experts have reported a case of a hard-shell nodular lesion in the right alar of the nose, which was diagnosed as rhinoscleroma after 4 years of evolution [3]. It has been reported that naso-scleroma can extensively involve many parts of the sinuses, nasopharynx and oropharynx [5]. The disease can also accumulate outside the respiratory system [6]. At present, the pathogenesis of rhinoscleroma is still unclear, mainly in the form of case reports, and the pathogenesis of rhinoscleroma is lack of research. In 1882, Frisch first isolated rhinoscleroma from the lesion, and serology is usually also helpful in the diagnosis of the disease [7]. Capsular Polysaccharide (CPS) is an important virulence factor of bacteria. All K (*Klebsiella*) and the serotype of naso-scleroma are K3. CPS was thought to be an important driver of naso-scleroma, but the results showed that the K3 capsular of naso-scleroma was not involved in the formation of Mikulicz cells [8]. Some experts have reviewed the inconsistencies in the etiology, histology, and epidemiology of nasal scleroma [9]. In light of the overall picture, they propose that intrinsic factors of genetic origin may contribute to the disease and suggest possible lines of research to distinguish between extrinsic and intrinsic factors as causative factors for rhinoscleroma. Imaging is to provide a reference for the surgical treatment of patients with sinonasal and sinonasal scleroma. The diagnosis of this disease is based on histopathological examination. Treatment methods include anti-infective therapy, radiotherapy, surgery, and combination therapy. The effect of streptomycin on cephalosporins, streptomycin, sulfonamide and other drugs has been known since Miller in 1946, but it has ototoxicity and should be routinely monitored for prevention [10,11]. Fluoroquinolones are taken orally and have higher tissue drug concentrations [12]. X-ray irradiation can promote fibrosis of the lesions, so that the lesions stop developing. When the lesions increase in value or scar formation, it can lead to nasal obstruction, laryngeal obstruction and pharyngeal stenosis, or it is not sensitive to anti-infective drugs. Surgical treatment is feasible. Preoperative medication is beneficial to intraoperative operation and reduce postoperative recurrence, and postoperative adherence to

antibiotic therapy is the key to prevent recurrence. In this case, the early onset of the patient was not paid attention to, no intervention, so the patient missed the early conservative treatment. Clinically, nasal scleroma is difficult to diagnose in imaging. The disease should be differentiated from atrophic rhinitis, syphilis, tuberculosis, leprosy, malignant granuloma and nasal tumor. Early diagnosis and treatment can not only block the spread of the disease, but also avoid the progression of the disease. The patient recently developed nasal obstruction. Considering the patient's condition and the particularity of rhinoscleroma disease, we used plasma nasal endoscopic mass resection. Compared with the traditional application of nasal tissue forceps and dynamic suction cutter to remove the diseased tissue, plasma has less surgical bleeding, clear operative field and less trauma. Traditional methods cannot ensure the integrity of mucosal tissue, and nasal scleroma is prone to recurrence and bleeding, while low-temperature plasma can disintegrate cells in molecular units by using the radiofrequency energy of low-temperature plasma, which can complete various functions such as cutting, hemostatic and ablation at the same time in a low-temperature environment to reduce the pain of patients [13]. The postoperative patients were followed up to observe the condition of the operation cavity. Under follow-up review, the operation cavity recovered well without complications and no recurrence was found. Due to the fear of recurrence, longer follow-up was needed [14]. This patient did not have accumulated paranasal sinuses, but was complicated with chronic sinusitis. The pathogenesis of sinusitis is complex. There is no relevant literature reporting that *Klebsiella* sinusitis is related to the pathogenesis of sinusitis.

Conclusion

In conclusion, plasma nasal endoscopic surgery for the treatment of nasal scleroma: Less damage, less bleeding, less pain, rapid postoperative recovery, effective resection of diseased tissue, for the treatment of nasal obstruction symptoms caused by nasal scleroma and prevent recurrence of the ideal surgical method.

References

1. Boubacar E, Nawal H, Atsime-Ebang G, Najib BM, El Fatemi H, Laila C. Rhinoscleroma: A chronic infectious disease of poor areas with characteristic histological features - report of a series of six cases. *Trop Doct.* 2018;48(1):33-5.
2. Sahli M, Hemmaoui B, Errami N, Benariba F. Salmonella thyroid abscess. *Eur Ann Otorhinolaryngol Head Neck Dis.* 2021;139(1):51-2.
3. Hart CA, Rao SK. Rhinoscleroma (editorial). *J Med Microbiol.* 2000;49(5).
4. Nadia B, Sofia B, Nadia A. Rhinoscleroma: A diagnosis not to be ignored. *Our Dermatol Online.* 2020;11(2):154-5.
5. Pradeep P, Pritinanda M, Vinusree K. An extensive sinonasal Rhinoscleroma: A rare occurrence. *Indian J Otolaryngol Head Neck Surg.* 2022.
6. Sadek HS, El-Marssafy LH, Hussein FF. First report of rare persistence granulomatous extra respiratory Rhinoscleroma of oral pathology. *Microb Pathog.* 2022;164:105451.
7. Botelho-Nevers E, Gouriet F, Lepidi H, Couvret A, Amphoux B, Dessi P, et al. Chronic nasal infection caused by *Klebsiella* rhinoscleromatis or *Klebsiella* ozaenae: Two forgotten infectious diseases. *Int J Infect Dis.* 2007;11(5):423-9.
8. Barbara C, Ana AS, Fabiane S, Virginia C, Cindy F, Sylvain B, et al. Rhinoscleroma pathogenesis: The type K3 capsule of *Klebsiella* rhinoscleromatis is a virulence factor not involved in Mikulicz cells

- formation. *PLoS Negl Trop Dis*. 2018;12(1):e0006201.
9. Fusconi M, Greco A, Cattaneo CG, Ciofalo A, Ralli M, de Vincentiis M. Social geography of Rhinoscleroma and qualitatively and quantitatively abnormal cell-mediated immunity. *Infect Genet Evol*. 2018;62:17-9.
 10. Ennouri A, Bouzouaia N, Hajri H, Ferjaoui M, Marrakchi H. [Cervico-facial cellulitis. 20 cases]. *La Tunisie medicale*. 1991;69(8-9).
 11. Ouoba K, Dao M, Sakande B, Kabre M, Cisse R, Sanou A. [Maxillofacial location of Burkitt lymphoma at the University Hospital Center of Ouagadougou, Burkina Faso]. *Med Trop (Mars)*. 1997;57(4):415-6.
 12. Badia L, Lund VJ. A case of Rhinoscleroma treated with ciprofloxacin. *J Laryngol Otol*. 2001;115(3):220-2.
 13. Elbadawey MR, Hegazy HM, Eltahan AE, Powell J. A randomised controlled trial of coblation, diode laser and cold dissection in paediatric tonsillectomy. *J Laryngol Otol*. 2015;129(11):1058-63.
 14. Ndiaye M, Sanou Diouf M, Ndiaye C, Sy A, Ndiaye M, Tall A, et al. Rhinoscleroma: Report of 2 cases and literature review. *Rhinol Online*. 2019;2(2)115-8.