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Case report

Value of radiofrequency ablation in the management of retropharyngeal lymphatic malformation

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ABSTRACT

Lymphatic malformations are benign malformations frequently occurring in the head and neck. Retropharyngeal location is rare, can be life threating and its management is particularly challenging. Over a three-year period, three patients presented with symptomatic (dyspnea and/or dysphagia) retropharyngeal lymphatic malformation. All were treated using a radiofrequency ablation of lymphatic malformation through a trans-oral approach. No major complications occurred following the surgery. During the follow-up, no recurrence was noted and all patients were asymptomatic. Radiofrequency ablation in the management of retropharyngeal lymphatic malformations is a simple technique with very good results and allows a fast recovery with minimum morbidity and a short hospital stay.

1. Introduction

Lymphatic malformations are benign malformations of lymphatic vessels, frequently occurring in the head and neck. They are classically classified as microcystic or macrocystic depending on the size of their components. The treatment of large and/or invasive lesions has always been considered challenging and there is so far no consensus regarding the optimal management strategy, whether by surgery or by sclerotherapy [1–3].

Complete resection of extensive lesions is generally challenging as it would be a very mutilating surgery in the head and neck area. Besides, a recurrence occurs often after a surgical resection and can necessitate repeated procedures [2,4].

On the other hand, sclerotherapy can be technically difficult for deeply located lesions and shows poor results in microcystic lymphatic malformation [3,5,6]. Lymphatic malformations located in the retropharyngeal space are rare. This location is at risk of causing dyspnea and dysphagia and can potentially lead to an acute respiratory distress in case of rapid growth or intracystic bleeding. Removal or reduction of a lesion at this location is particularly challenging. Radiofrequency ablation has proved its effectiveness for lymphatic malformations located in the oral cavity, as well as in cases of recurrent bleeding [7–10]. To date, only one publication has described the use of radiofrequency ablation for an oropharyngeal lymphatic malformation [11]. In this study, we report three new cases of symptomatic retropharyngeal lymphatic malformations successfully managed with radiofrequency ablation.

2. Material and methods

This case series is a retrospective study in a tertiary pediatric medical center over a three-year period. Cases were identified from our local database. Clinical charts were reviewed for demographic characteristics, type of lymphatic malformation, presenting signs, surgical technique and outcomes. The local institutional review board approved this study. Informed consent was obtained from all children's parents.

Diagnosis was based on radiological exam: computed tomography (CT) scan and/or magnetic resonance imaging (MRI) but all diagnosis were confirmed by a pathological examination.

All patients were treated following the same surgical procedure under general anesthesia with orotracheal intubation using a preformed tube. First, we set up the Boyle–Davis mouth gag to access the posterior pharyngeal wall. No aspiration was done to avoid any trauma as these lesions are thin walled and may easily rupture. A vertical median mucosal incision was then made. The mucosa was laterally elevated from the underlying lymphatic malformation in order to avoid a mucosal injury during the radiofrequency ablation. We used a radiofrequency wand

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(Coblator®, ArthroCare ENT; Sunnyvale, CA, USA) with a power setting of 5 W. We performed the radiofrequency ablation of the lymphatic malformation, sparing the surrounding structures and the mucosa. After the reduction was made, we applied fibrin glue (Tissucol®, Baxter; Deerfield, IL, USA) into the surgical site and closed the pharyngeal mucosa with absorbable sutures. All patients were extubated immediately after the procedure. They all had a five-day antibiotic course (amoxicillin–clavulanic acid).

Radiological follow-up consisted of MRI with T1, T2, FAT SAT and T1 with gadolinium sequences.

3. Results

Three patients underwent a radiofrequency reduction of a retropharyngeal location of lymphatic malformation during the considered period.

3.1. Case #1

A two-month old boy was referred to our center because of a voluminous mixed cervical and retropharyngeal lymphatic malformation. A first procedure had to be performed in emergency due to respiratory distress. It consisted of a cervicotomy and a subtotal removal of the mass. A recurrence was shortly diagnosed, accompanied by respiratory impairment. Two sclerotherapies were attempted at 1.5 and 2.5 months postoperatively. A tracheostomy was necessary due to a regrowth causing a respiratory distress at 3 months postoperatively. A third attempt of sclerotherapy was performed a month later, with poor success.

On the radiological follow-up, a regrowth of the lymphatic malformation was noted, mostly on its retropharyngeal and laterocervical components. It warranted a second surgical procedure two years after the first one.

We performed an exclusive intraoral approach as described in Section 2. Oral feeding was started on the first post-operative day. An infection of the operative site required an intravenous antibiotic therapy for a week. The duration of hospitalization was 14 days.

Six months after this procedure, no recurrence was noted and the patient had its tracheostomy removed. Two years after the last procedure, no evidence of regrowth was noted. The patient had no dysphagia and no respiratory symptoms. The radiological follow-up at two years noted a laterocervical remnant of the lymphatic malformation, which was stable.

3.2. Case #2

A 10-year old boy presenting a remnant of a retropharyngeal lymphatic malformation was referred to our center (Fig. 1). The patient had undergone surgery twice in his early childhood with an external approach. At this time, a tracheostomy and a gastrostomy were necessary for a year. At the time of the consultation, the patient presented an intermittent dysphagia, which was worsening during the last year. It was treated by frequent courses of oral steroids. A left laryngeal paralysis was noted as a sequel of former surgical procedures. There were no respiratory symptoms. Surgery was performed following our protocol. Oral feeding was started on the first postoperative day. He stayed in the hospital for two days. Spectacular improvement of the symptomatology was noted. No clinical or radiological regrowth was noted during the 16 months follow-up. No adjuvant procedure was necessary.

3.3. Case #3

A 3-year old girl presented with snoring since birth. At two and a half years, the snoring worsened and she had sleep apnea. At three years of age, her dysphagia increased rapidly. The physical examination at this time revealed both dyspnea and aphagia. A retropharyngeal swelling compressing the larynx was seen on the fiberoptic examination. The CT scan revealed a large retropharyngeal mass consistent with a macrocystic lymphatic malformation (Fig. 2). The patient underwent surgery according

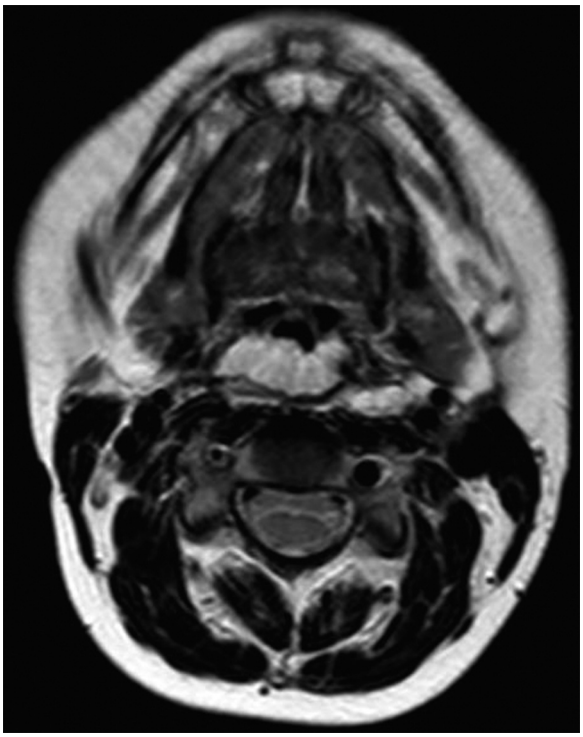

Fig. 1. Patient #2, preoperative MRI T2 sequence, showing a remnant of a retropharyngeal lymphatic malformation.

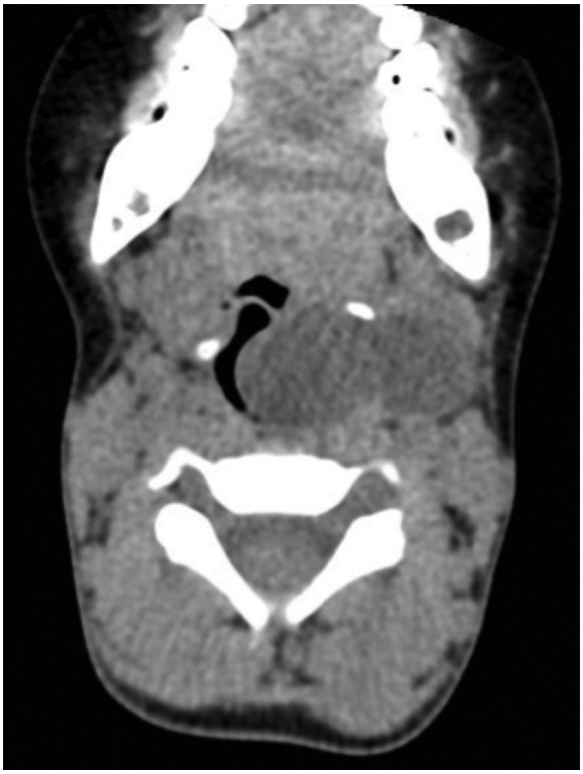

Fig. 2. Patient #3, preoperative axial CT scan showing a left parapharyngeal and retropharyngeal voluminous macrocystic lymphatic malformation causing a significant narrowing of the supraglottic airway.