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Case Report

Infant with Diverticulo De Zenker Giant Treatment-Surgical

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Received: June 14, 2019; **Published:** July 22, 2019

Abstract

Zenker's diverticulum is an unusual pathology in adulthood. The vast majority of these occur between the seventh and eighth decades of life. There is little evidence on the presentation and medical management in pediatric age. The most common symptom is dysphagia, others are halitosis, odynophagia, weight loss. The diagnosis is corroborated with an esophagogram and the esophagoscopy is complementary to the diagnosis. The treatments used in adulthood are multiple with a recurrence of up to 16%. In this article, mention is made of a case of a 9-month-old infant with a giant Zenker diverticulum successfully treated by surgery. Patient attended at the General Hospital of Zone N-8 of the IMSS Ensenada, in November 2012.

Keywords: *Zenker's Diverticulum; Disglusia; Boyce's Sign; Killiam's Triangle*

Introduction

The fanringo-esophageal or Zenker diverticulum was described by the pathologist Friedrich Albert von Zenker (1825-1898) and occurs at ages of 60 - 80 years. It is characterized clinically by presenting digestive disorders such as dysphagia, vomiting, regurgitation and sometimes the presence of a tumor in the lateral part of the neck [1]; Due to frequent aspirations of food causes respiratory tract infections. Its diagnosis is suspected with clinical signology and is confirmed by lateral X-ray image studies of the neck and with the dynamic analysis of the mechanism of swallowing.

We had the opportunity to treat a 9-month-old female infant diagnosed with Zenker Diverticulum, which motivated us to study and present it.

Clinical Case

Female patient of 9/12 with no family and pathological inheritance history of importance. It is a product of the third pregnancy without problems during pregnancy, the delivery and weight of the product were normal. Psychomotor development according to their age and without pathological data. Its feeding to the maternal breast, initiating its complementary feeding to the 6 months with purees of fruits. The vaccination schedule is complete for your age and without allergic conditions or previous surgeries.

His current condition is 4 days of evolution with difficulty feeding and access to productive cough, not emetic or cyanide; Thoracic wheezing is heard and with moderate respiratory difficulty. It is seen by Pediatrician that indicates medical treatment with inhaloterapia and antibiotics; With this therapy there is no improvement and respiratory difficulty increases, so she goes to the pediatric emergency service.

Physical exam: FC-114/ min, FR-62/min, Temp. 37ºC, Weight-7 Kg. It is observed irritable, pale, with signs of moderate respiratory insufficiency and sialorrhea. Ears, nose and mouth without apparent alterations; In the lateral part of the neck an increase of volume is

observed, it is smooth surface, painless and without adenomegalies (Figure 1). In the thorax symmetrical respiratory movements with xiphoid retraction and intercostal shots are observed; bilateral crackles are heard and his expiration is prolonged. Precordial region without deformations with rhythmic tachycardia and in heart sounds no murmurs are detected. The abdomen is symmetrical without visceromegaly's and normal peristalsis. Genitals, extremities and other systems without apparent alterations. Medical treatment was started with a diagnosis of bronchopneumonia, during his hospital stay with increased respiratory distress, so ventilatory support (mechanical ventilation) was necessary. Once intubated, it improved considerably its ventilation for which in several occasions an unsuccessful extubation was attempted, since it presented great difficulty to breathe. without improvement and prevailing his state of respiratory commitment, towards the fifth day of hospital stay his condition is serious and a lateral X-ray of the neck is taken looking for an obstructive cause, where a cystic image is observed behind the esophagus, moving it towards in front and also compressing the airway (Figure 2). We perform tomography computed cervical where a giant cyst is seen in the posterior part of the airway (Figure 3).

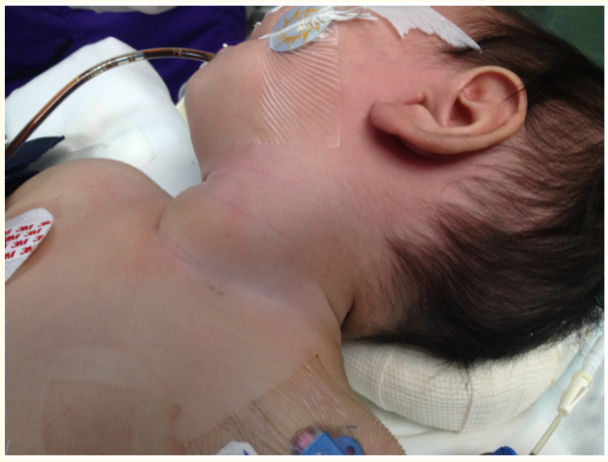

Figure 1: *Left, smooth, painless, easily palpable tumor mass.*

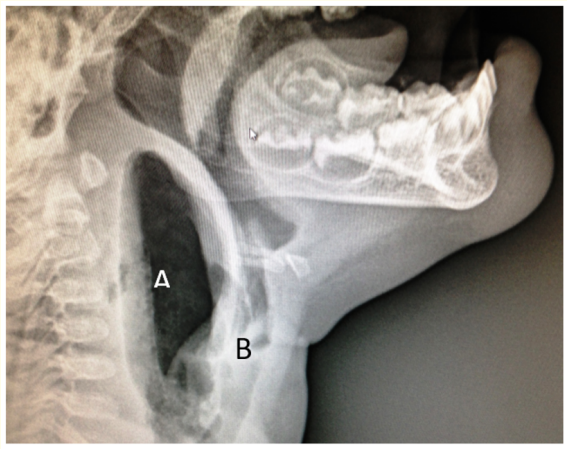

Figure 2: *Lateral cervical radiograph showing the following findings: A. Large esophageal retro cyst in relation to vertebrae C1 and T1; B. Anterior displacement of the trachea with consequent esophageal compression.*

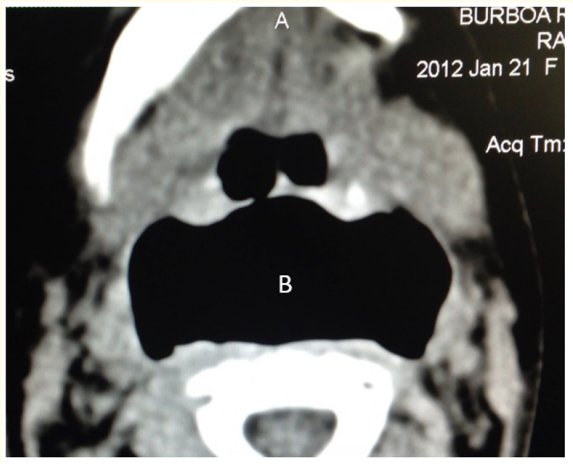

Figure 3: *Axial section of a simple tomographic study showing: A. Large cyst occupying the entire neck diameter; B. Airway diverted to the front.*

Under these conditions, it is decided to surgically intervene with the diagnosis of retroesophageal cyst, with the purpose of draining the cyst and decompressing the airway. An incision in the left side of the neck on the tumor is partially dissected and a lateral opening is made as a cystostomy in order to drain the air content and liquid of the cyst (Figure 4), the operation is finished leaving a drain (penrose) inside the small stoma in order to prevent the cyst from forming again.

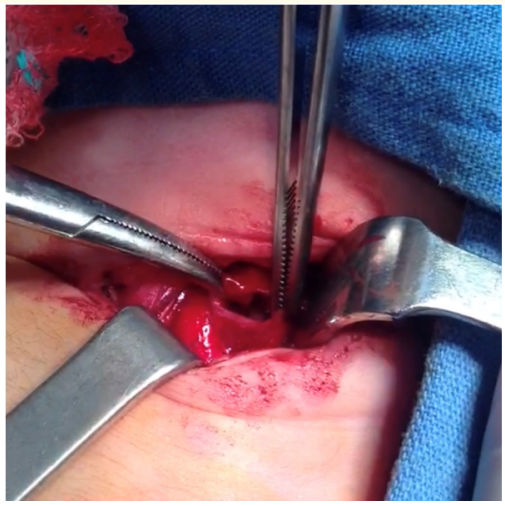

Figure 4: *First surgery. Left cervical approach, performing a quistostomy.*

Once the general conditions of the patient have been improved, an esophagogram is performed where good esophageal transit is observed but there is leakage of the contrast medium towards the cyst and through the drainage (Figure 5). We also performed an endos-

copy that allowed us to visualize two orifices, the esophageal and the other that corresponded to the cyst lumen (Figure 6). After reviewing the previous studies, the diagnosis of Zenker Diverticulum is reached.

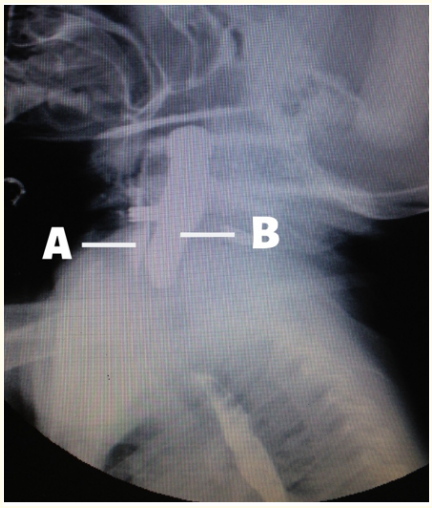

Figure5: *Esophagogram. A) Esophagus, B) Retro-esophageal cyst. The cyst is filled with contrast medium and it is obtained through the cervical drainage.*

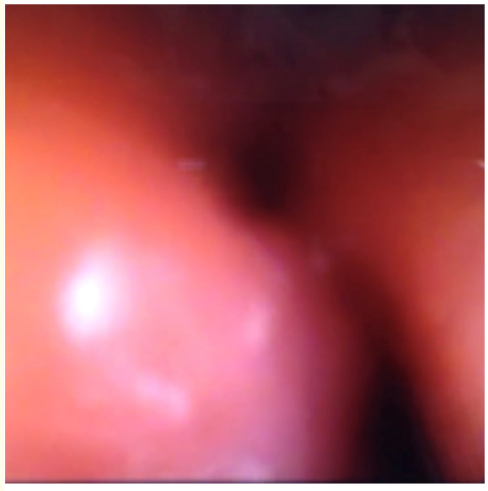

Figure6: *Flexible endoscopy showing the entrance orifice to the esophagus (inferior) and the entrance orifice to the cyst (upper).*

A second intervention is performed and on this occasion part of the diverticulum is dissected in its lower part on the left side, through this window of the cyst allowed us to make a vertical incision in the lower and anterior wall of the cyst of approximately 5 cm, being sufficiently productive to reach the esophageal lumen (esophagus-myotomy), which was occupied with an esophageal probe as a measure

of protection and anatomical reference. It anastomoses with the wall of the diverticulum, leaving the two walls joined by a window. Next, reconstruction of adjacent structures.

One week later, a control esophagogram was performed where there is no leakage of the contrast material and the transit is normal, so we started oral feeding (Figure 7).

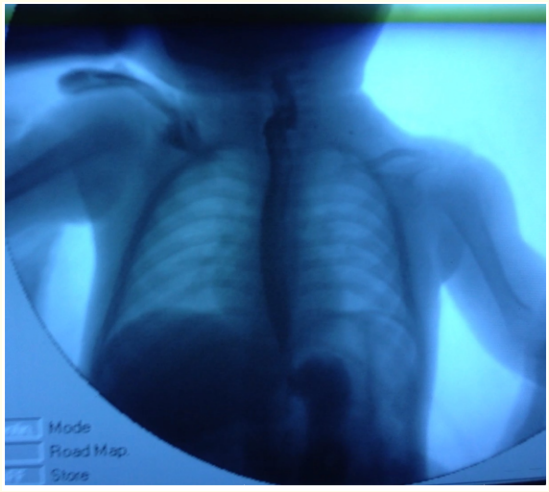

Figure7: *Normal esophagogram, 1 week after surgery, there is no leakage of contrast medium to diverticulum.*

The postoperative period was good and a year later with a control esophagogram, no alterations were shown, there being an adequate passage of the contrast material to the stomach, without showing traces of the diverticulum. At this time your health conditions are good.

Discussion

The DZ is a protrusion of the esophageal mucosa and submucosa through the Killiam triangle, its incidence in the United States is 0.01 to 0.11% [2,3] in the General Hospital of Mexico is 0.04% [2]; in the United Kingdom it is 2: 100,000 inhabitants/year [4-6]. It occurs mainly between 60 - 80 years and predominates in men [2,7-9]. Pediatric cases are uncommon and in infants are exceptional [4,10]. Clinical evolution includes: dysglusia, dysphagia, excessive salivation, halitosis, regurgitation, sensation of a foreign body in the throat, "palpable" air noises in the neck, as well as cough and dyspnea [1,8,9]. In some cases and depending on the size of the DZ, the sign of Boyce can be found [1,3] and shortly thereafter, they become more complicated with pneumonia due to aspiration of food into the airways and weight loss [2,4,7,8,11-13].

The swallowing of the amniotic fluid develops during the second trimester of pregnancy, which has been demonstrated with fetal ultrasound and it can be said that in the third trimester the fetus swallows 6 times more frequently than the adult. Thanks to this the child at birth already has a normal swallowing that will allow him to feed immediately after the delivery [14].

In the pathogenesis of the DZ we can think that there is an alteration in the coordination of swallowing at the time of the passage of fluid or food in the faringo-esophageal portion, where the pressure of the constricting muscles of the pharynx push the pharyngeal content to the sphincter esophageal superior and this one must be relaxed, to allow the free transit of its content. When there is an alteration of the cricopharyngeus muscle that partially prevents the entry of food, the contraction force of the pharyngeal muscles increases, with

which the intralumnial pressure increases and is transmitted to the fanrigo-esophageal junction and in this way, swallowing makes. This dysfunction herniated the esophageal mucosa little by little through the Killiam triangle, thus producing Zenker's diverticulum [3,4,7-9,15]. It is possible that this pathology begins in intrauterine life and after birth increases to produce the large diverticulum as in the case presented1, this requires prospective pre- and postnatal investigation to clarify the pathogenesis of DZ well.

Diagnosis of DZ is made by means of lateral and oblique radiographic plates of the neck but above all with the mechanism of swallowing with contrast medium and fluoroscopy [1,7,9]. This procedure allows us to visualize in slow motion the alterations in swallowing.

It is convenient to remember that the use of the barium can bring serious problems, if you aspire to the airways, it is preferable to use water-soluble material that causes fewer problems, especially in the pediatric age.

Morton-Brartney classifies the DZ according to their length in three stages: E I of < 2 cm, E II between 2 - 4 cm and E III> 4 cm; in the advanced E III the mouth of the diverticulum is horizontal and has a larger diameter than the esophageal orifice that is displaced [3,4,10].

The endoscopic study of the DZ is very important since it ratifies the diagnosis and in addition, we can observe the intraluminal anatomical morphology such as the thickness of the septum, measure the depth of the sac and also if there are data of inflammation of the mucosa, hemorrhagic petechiae or ulcers; characteristics that should be improved with medical treatment and postpone surgical therapy to avoid complications.

The size of the diverticulum determines what type of surgical procedure should be performed [6].

Morton and Bartley criterion	
Criteria	**Surgical Technique**
I. Small sack less than 2 cm long	Myotomy Cricopharyngeal alone is enough
II. Intermediate sac between 2 and 4 cm in length	Endoscopic surgery or open technique may be performed
III. Large sack greater than 4 cm in length	Open surgery

Table

The most frequent complications associated with diverticulum surgery are: mediastinitis, recurrent nerve injury with vocal cord paralysis, fistula, esophageal stenosis and recurrence or persistence of the pocket [5,9,11-13].

Conclusion

At present there are several surgical techniques for the treatment of Zenker's diverticulum and each of them has its degree of difficulty as well as the need for equipment and specialized. Currently, there is very little experience in the management of this pathology in pediatric patients. The case we present is exceptional due to the rarity, large size and the need for immediate surgical correction. The patient was operated successfully and without developing complications in the short or medium term; The surgery was performed openly due to the unique characteristics of the case.

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Volume 8 Issue 8 August 2019