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Original Article

Behavior of branchial cysts in patients at the “Carlos Manuel de Céspedes”

General Teaching Hospital in Bayamo

Behavior of the gill cyst in patients of the "Carlos Manuel de Céspedes" Bayamo

General Teaching Hospital

Behavior of the branchial cyst in patients of the General University Hospital

"Carlos Manuel de Céspedes" Bayamo

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SUMMARY

Congenital branchial cysts that appear on the lateral side of the neck are a frequent reason for consultation. The objective of this study was to determine the behavior of branchial cysts at the Carlos Manuel de Céspedes Hospital in Bayamo, from 2018 to 2022. A cross-sectional descriptive study was conducted of branchial cysts diagnosed in patients undergoing surgery at the Maxillofacial Surgery Service. Age, sex, skin color, affected side of the neck,



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histopathological results, and the auxiliary methods used were studied. Histopathological examination revealed that in all 10 cases, the cystic wall was lined by stratified squamous epithelium, 70% had some degree of lymphoid tissue, and 30% contained yellowish fluid. It was concluded that no gender predilection was found in the branchial cysts studied; most patients were under 30 years of age, had white skin, and had cysts located on the right side of the neck. Ultrasound was used as an auxiliary diagnostic tool in all patients.

Keywords: Branchial cyst; Embryonic cysts of the neck.

SUMMARY

A gill cyst of congenital origin that appears in the lateral region of the neck is often a reason for consultation. The objective was to determine the behavior of gill cysts in the "Carlos Manuel de Céspedes Hospital", in Bayamo in the period from 2018 to 2022. A cross-sectional descriptive study of gill cysts diagnosed in patients undergoing surgery in the Maxillofacial Surgery Service was performed. Age, sex, skin color, affected side of the neck, histopathological result and the auxiliary means used were studied. Histopathological examination reported that in all 10 cases the cystic wall was lined with stratified squamous epithelium, in 70% there was some degree of lymphoid tissue, in 30% a yellowish fluid was found. It was concluded that in the gill cysts studied, no predilection for sex was found, most of the patients were under 30 years of age, with white skin and had cysts located on the right side of the neck. Ultrasound was used as diagnostic aids in all patients. Key words: Gill cyst; Embryonal cysts of the neck.

SUMMARY

A gill cyst of congenital origin that appears in the lateral region of the fish is usually a reason for consultation. The objective was to determine the behavior of two branchial cysts at "Hospital Carlos Manuel de Céspedes", in Bayamo, in the period from 2018 to 2022. A descriptive cross-sectional study of branchial cysts diagnosed in patients undergoing surgery at the Bucomaxillofacial Surgery Service was carried out. Foram estudados idade, sex, cord da pele,



lateral attack of the fish, histopathological result and the auxiliary means used. The histopathological examination reported that in all 10 cases the cystic wall was lined by stratified squamous epithelium, in 70% there was some grain of lymphoid tissue, in 30% yellowish fluid was found. It is concluded that the gill cysts studied were not found to have sex predilection, most of the patients were less than 30 years old, the cysts were located on the direct side of the fish. Ultrasonography was used as a diagnostic aid in all patients. Keywords: Branchial cyst; Fish embryonic cylinders.

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Introduction

Branchial cyst is a soft, smooth, lobulated congenital malformation, located in the neck in its lateral region in front of the sternocleidomastoid muscle at the level of the hyoid bone, which generally appears in young patients according to most authors. (1-9)

Branchial cysts arise from an abnormal development of the embryonic pharyngeal apparatus, due to a failure of complete obliteration of one of the branchial arches. (2-4) They are usually closed cysts, although occasionally they may be accompanied by a fistula.

Most branchial cysts are asymptomatic, meaning they are not usually painful and do not interfere with neck mobility or swallowing. The mass is spherical, elongated, and mobile on the lateral side of the neck, just below the mandible, anywhere along the sternocleidomastoid muscle, most commonly between the middle and lower thirds of the muscle. (5)

Diagnosis is generally straightforward, provided a thorough history and physical examination are performed. There are several diagnostic tools that can help confirm the diagnosis, such as



soft tissue ultrasound, CT, and even magnetic resonance imaging (MRI). We believe these studies help confirm the diagnosis, but by consistently applying the clinical method, conducting a thorough history, and performing a thorough examination of the neck, they can be dispensed with. (1,6)

Treatment for branchial cysts consists of complete surgical resection of the cyst. Surgical management requires excision of the cyst, as well as its ducts and branches, if present. Recurrence is unlikely after surgery.

The main objective was to determine the behavior of branchial cysts within the attraction area at the aforementioned hospital from 2018 to 2022. We also sought to identify the demographic characteristics that distinguished patients with branchial cysts according to sex, age, and skin color, and to determine the frequency of branchial cysts according to their location and identify the main auxiliary means used for diagnosis, as well as the histopathological characteristics of this condition.

This study performs an epidemiological, clinical, and histological analysis within our sample in the attraction area of the “Carlos Manuel de Céspedes” Hospital in patients diagnosed with branchial cysts.

Methods

A retrospective study was conducted on 10 patients diagnosed clinically and histologically with branchial cysts who were surgically treated in the Maxillofacial Surgery Service of the Carlos Manuel de Céspedes Hospital in Bayamo, Granma province, Cuba, from January 2018 to December 2022. This constituted the sample.

Data from the clinical study (age, sex, race, clinical presentation), histological (stratified squamous epithelium, lymphoid tissue, yellow fluid), imaging (location, size and image) and evolution of each patient (recurrence or not) are collected.



Results

The average age of patients at initial diagnosis is 24 years, with a range of 18 to 34 years. Regarding gender, 7 are men and 3 are women, a ratio of 2:3. Regarding the municipality of origin, 6 are from Bayamo and 4 from the remaining municipalities.

All patients attended the outpatient clinic or emergency room of the Carlos Manuel de Céspedes Hospital in Bayamo. The main symptom in all patients was painless swelling (100%). The lesion was predominantly located on the right side of the neck (60%). All lesions were located anterior to the sternocleidomastoid muscle and at the level of the hyoid bone (Fig. 1).



Fig.1. Branchial cyst on the right side of the neck.

Ultrasound was used as a diagnostic tool in 100% of patients, yielding an echogenic presentation pattern. One patient underwent CT in addition to ultrasound (Fig. 2).



Fig.2Ultrasound image of a branchial cyst.

The axial image shows a branchial cleft cyst (arrowheads) located anterior to the sternocleidomastoid and lateral to the carotid sheath. (Fig. 3)

Where a well-defined echolucent zone was observed.

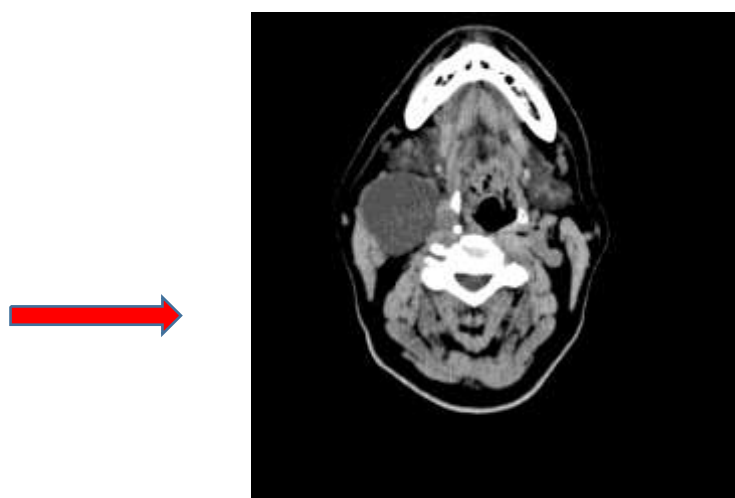


Fig.3.CT. The axial image shows a branchial cleft cyst.

The mean lesion size was 3 cm x 2 cm, with the largest being 5 cm x 2 cm and the smallest being 1 cm x 1 cm (Table 1).

Table 1.Summary of clinical cases.

Patient	Age	Sex	Skin color	Municipalit	Clinic	Diagnostic	Location
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1	26	M	white	Bayamo	Swelling	ultrasound	right
2	28	M	black	Ox Up	Swelling	ultrasound	left
3	34	M	white	Bayamo	Swelling	ultrasound	right
4	23	F	black	Bayamo	Swelling	ultrasound	left
5	26	M	black	Jiguani	Swelling	ultrasound	left
6	19	M	white	Bayamo	Swelling	ultrasound	right
7	22	F	white	Cauto River	Swelling	ultrasound	right
8	27	M	White	Guise	Swelling	ultrasound	right
9	21	F	white	Bayamo	Swelling	ultrasound	left
10	18	M	white	Bayamo	Swelling	ultrasound + CT	right

Histopathological examination reported that in all 10 cases the cystic wall was lined by stratified squamous epithelium, in 70% there was some degree of lymphoid tissue and in 30% a yellowish fluid was found (Table 2).

Table 2.Summary of clinical cases.

Image	Size (cm)	Histological	Relapse
Echogenic	3x3	Cystic wall + Lymphoid tissue	NO
Echogenic	4x3	Cystic wall + Lymphoid tissue	NO
Echogenic	5x2	Cystic wall + Lymphoid tissue	NO
Echogenic	5x2	Cystic wall + Yellow fluid	NO
Echogenic	4x1	Cystic wall + Lymphoid tissue	NO
Echogenic	3x2	Cystic wall + Lymphoid tissue	NO
Echogenic	2x1	Cystic wall + Yellow fluid	NO
Echogenic	2x2	Cystic wall + Lymphoid tissue	NO



c			
Echogeni c	2x2	Cystic wall + Yellow fluid	NO
Echogeni c	1x1	Cystic wall + Lymphoid tissue	NO

Discussion

Neck masses can present in different forms, varying in location, size, consistency, and content; many of them are cystic. When it comes to the latter, we are forced to think about a variety of clinical entities that can manifest in this way, among them we have: branchial cysts. (1-7)¹

Branchial cysts are most commonly diagnosed in older children and young adults, which was consistent with the results of this study. Branchial cysts are slow-growing masses, and their first clinical manifestation may be an increase in volume. They are the second most common embryological cyst of the neck, according to several reports in the literature. (6-13)

There is no predilection for sex or skin color, and they can appear on either the right or left side. (10-13)

They are thought to be located in front of the sternocleidomastoid at the level of the hyoid bone, but occasionally they may be close to the mastoid process or very low near the clavicle. (1-3) Abdelfattah (11) reported a branchial cyst in the pear-shaped fossa and Beichner (12) found one in the thorax.

In the present study, all patients had their lesion in the most frequent position; in no patient were the cysts found in atypical or unusual positions. (11)

Ultrasound is the initial diagnostic aid of choice in the study of cervical masses in both adults and children, as it is a safe method. (4,8-10) The branchial cyst is observed as a well-defined, thin-walled echolucent formation very close to the sternocleidomastoid muscle and adjacent to the carotid vessels, as observed in the patients studied.

CT scans show the exact anatomical location of the lesion and its relationship to neighboring structures. An uncomplicated cyst is low-density and has a regular, thin wall. An infected cyst is



denser due to increased protein content and has a thick wall. The diagnosis can be made more precise with the use of contrast-enhanced X-rays. (10-12)

CT is less frequently used and is not always necessary. Fine needle aspiration biopsy provides a more accurate preoperative diagnosis, making it very useful (13); however, histopathological examination of the surgical specimen is what provides the definitive diagnosis.

The author (10) agreed with what was stated in the literature, that the epithelium that predominated was the stratified squamous and that abundant lymphoid tissue appeared in its capsule, for which reason it is also called lymphoepithelial cyst. Inside they almost always present a dark or yellowish liquid content, (2-3) all these elements were found in the histopathological study of the cysts studied.

Conclusions

It was concluded that no gender predilection was found in the branchial cysts studied; most patients were younger than 30 years old, had fair skin, and had cysts located on the right side of the neck. Ultrasound was used as an auxiliary diagnostic tool in all patients. Stratified squamous epithelium and lymphoid tissue were the most relevant histopathological findings.

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Conflict of interest

The authors declare no conflicts of interest.



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