

## CAS CLINIQUE / CASE REPORT

# GANGLION CYST ARISING FROM THE FIRST METACARPOPHALANGEAL JOINT IN AN ADOLESCENT

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Amer SEBAALY, Firass HAJJ, Gaby KREICHATY, Ismat GHANEM\*

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**ABSTRACT :** Pediatric ganglion cyst of the hand is a rare entity. Its incidence is even lower in those arising from the metacarpophalangeal (MP) joint. We herein report the first known case of a ganglion cyst of the first MP joint in a 14-year-old boy. Pathogenesis, diagnosis and treatment are discussed.

Keywords : ganglion cyst, hand, metacarpophalangeal joint, pediatric population

### INTRODUCTION

Ganglion cysts arising from the hand joints are rare in the pediatric and adolescent populations. The purpose of this paper is to review the clinical features and management of ganglial cysts of the hand in the pediatric population.

### MATERIAL AND METHODS

A thorough literature review was undertaken using the PubMed research engine. "Synovial," "ganglion" and "cyst" together with infants and adolescents were used as keywords. All articles reporting hand and/or wrist cyst were included and those reporting other sites of involvement were excluded. A case of ganglion cyst arising from the metacarpophalangeal joint of the thumb is added.

### RESULTS

A total of twenty-seven synovial cysts in patients below the age of twenty years were found to which we added the first known case of metacarpophalangeal joint in an adolescent.

### CASE REPORT

A 14-year-old presented with the complaint of a mass in his right hand ahead of the first metacarpophalangeal joint. He reported neither pain nor limitation of fine right thumb movement. He had no history of trauma. Clinical exam showed a rounded 1 cm painless mobile mass in front of the first metacarpophalangeal joint.

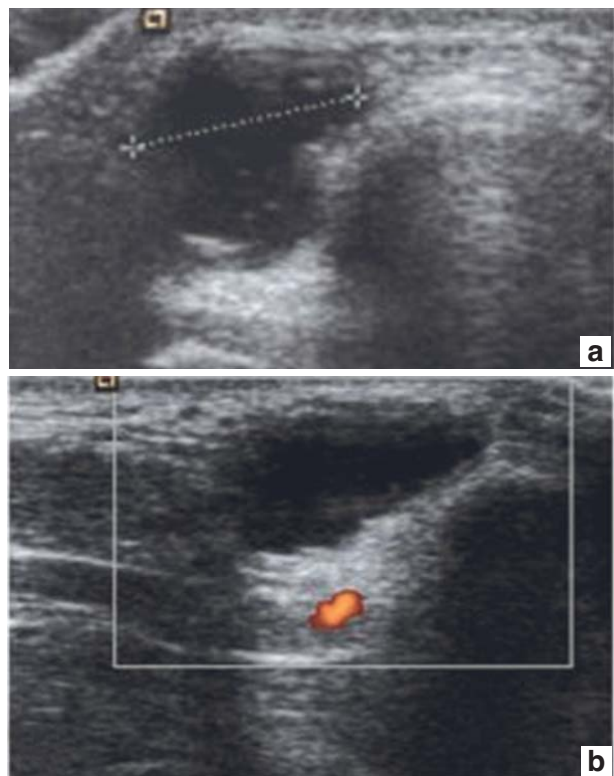
Ultrasonography showed a multilobulated cystic formation (11 x 12 cm), mostly avascular, taking origin

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**RÉSUMÉ :** Le kyste synovial de la main dans la population pédiatrique est rare. L'incidence des kystes originaux de la métacarpo-phalangienne est d'autant plus faible. On rapporte dans cet article le premier cas de kyste synovial de la première métacarpo-phalangienne chez un garçon de 14 ans. La pathogénie, le diagnostic et le traitement sont discutés.

Mots-clés : kyste ganglionnaire, main, articulation métacarpo-phalangienne, population pédiatrique

from the first metacarpophalangeal joint. No other abnormalities were noted (Fig. 1a, 1b). The presumptive diag-



**FIGURE 1.** (a) Ultrasonography showing a round multilobulated cystic lesion (11 x 12 mm) stemming from the first MP joint and pushing the flexor pollicis longus tendon. (b) Doppler US: Avascular pattern.

\*Department of Orthopedic Surgery, Hôtel-Dieu de France Hospital, Faculty of Medicine, Saint Joseph University, Beirut, Lebanon. Correspondence: Amer Sebaaly, MD. e-mail: amersebaaly@hotmail.com

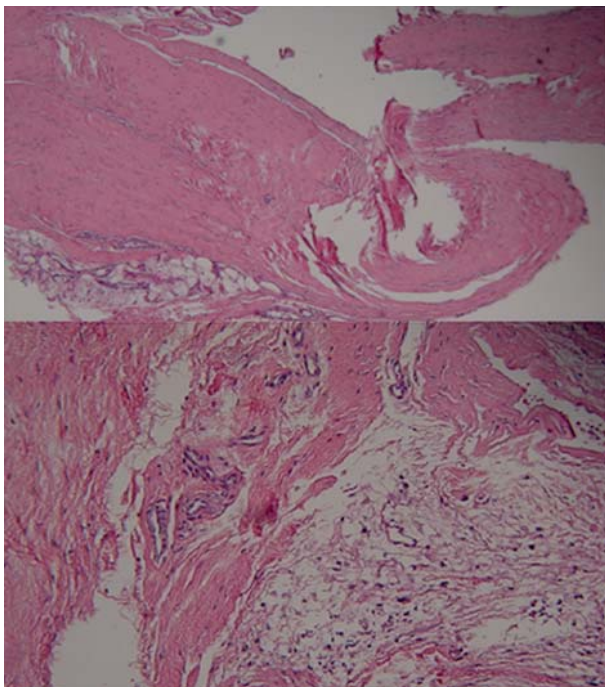
nosis was of a ganglion cyst. A “wait and see” attitude was adopted but the patient and his family decided on having it excised owing to the previous family history of malignant musculoskeletal tumor.

During surgical exploration under axillary bloc anesthesia, the direct surgical approach yielded a 1.5 cm synovial cyst taking origin from the first metacarpophalangeal joint. Attempt to resect the cyst from its base was successful. Pathology was consistent with a ganglion cyst (Fig. 2).

#### DISCUSSION

Ganglion cysts are the most common tumor of hand and wrist in pediatric and adult populations. Ganglia of the hand are more common in adults and result from degenerative changes of tendon sheets and articular components [1]. On the other hand, they are much less common in the pediatric population. Because of their scarcity, treatment of pediatric hand cyst is still controversial.

Ganglion cysts have a female predominance with a female to male ratio around 4 [2]. It presents normally as a fluid containing rounded mass, eventually painful. Fluid analysis shows a gelatinous fluid containing mainly hyaluronic acid and, to a lesser amount, glucosamine, globulins and albumin. Microscopically, a pedicle containing a tortuous lumen connects the cyst to the underlying joint. The walls of the cyst are composed of randomly oriented sheets of collagen arranged in a loose layer, one on the top of the other (Fig. 2). Rare cells are



**FIGURE 2.** Histology: Hematoxylin eosin coloration (10x zoom): Sections show fibrovascular tissue without any significant inflammatory changes. There is no evidence of malignancy. The overall picture is compatible with a ganglial cyst.

present in the collagen sheets and present a fully functional fibroblast or mesenchymal cells. No synovial lining is present. No necrosis, inflammatory changes, nor malignant degeneration of the cyst is seen [3].

Conventional X-rays are not diagnostic. Ultrasonographic characteristics of ganglion cysts include well defined margins, peripheral walls, posterior acoustic enhancement, septations and lobulations. Cysts with necrosis or hemorrhage may show diffuse and tiny internal echo [4]. Magnetic resonance imaging (MRI) shows a homogenous signal iso-intense to muscle on T1-weighted images and hyperintense on T2-weighted images. There is no need for contrast enhancement [5]. Ultrasonography (US) has a sensitivity of 88% and a specificity of 85% and when comparing the two imaging modalities, an equal effectiveness of US and MRI was shown in diagnosing a ganglion cyst of the hand [6].

Natural history of ganglion cyst is not fully understood and their treatment is still controversial. Patients seek treatment for cosmetic reason, concern over malignancy and to a lesser extent for pain with a mean delay between diagnosis and operative treatment of 9.3 months [7]. Some studies showed an 84% natural resolution rate in the average of 9 months [8] while others report a resolution rate of 76% over 3.5 years of follow-up [9]. Aspiration and injection of steroids may be tried but recurrence rate with these modalities remains higher than surgical excision [10].

Thus, surgical excision remains the gold standard in the treatment of symptomatic or progressively growing ganglion cysts and has a low complication rate [3]. Nonetheless, recurrence is high in pediatric population reaching 36% in some studies [2]. Hence, the majority of authors recommend that pediatric ganglia are best managed by observation if the patient is asymptomatic, coupled with reassurance for the children and their parents [2,9,11].

#### CONCLUSION

Hand ganglia are rare in the pediatric population. Diagnosis is clinically supplemented by ultrasonography and magnetic resonance imaging. Spontaneous resolution is to be expected in the majority of cases, but surgical excision may be an option mainly in painful, growing cysts or in children of very anxious parents that fail to wait despite assurance.

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