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CONSERVATIVE TREATMENT VS SURGICAL TREATMENT: CLAVICLE FRACTURE IN PEDIATRICS-PRESENTATION OF A CASE

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ABSTRACT

Clavicle fractures represent 2 to 15% of pediatric fractures. The literature suggests operating patients older than 7 years with major shortening or severe comminution in the fracture line, but no one establishes shortening or angulation parameters for conservative treatment in children. In pediatric patients, it is important to take into account the relative shortening, that is, that caused by a fracture, adjusted to the healthy length.1

The clavicle is one of the bones most prone to injury, due to its subcutaneous and relatively anterior location, especially in pediatric age; its management, orthopedic or surgical, remains controversial.2

The primary goal of treating a clavicle fracture is to restore previous function of the involved shoulder. There is complete agreement in the literature that the indication for management with closed reduction is the presence of an undisplaced and uncomplicated fracture; but there is no general agreement on the indications for management with open reduction and internal fixation.3

Several authors have reported the clinical superiority obtained with surgical treatment for clavicle fractures in adults; but as for the pediatric population, there are few studies comparing surgical treatment against conservative treatment4

The case of a 9-year-old female pediatric patient is presented, who after climbing a tree suffers a tree fall, with a direct blow to the left shoulder, accompanied by acute pain, reason for which she goes to a specialized hospital ; where evaluation and visualization of radiographs are performed, objectifying a left clavicle fracture, the best method of surgery is decided, which is successful with positive results.

Objective: To establish an effective treatment of clavicle fracture in pediatric age

Method: This is a retrospective study, in order to determine an effective treatment for a clavicle fracture

Conclusion: The clinical suspicion of a clavicle fracture in children appears after trauma. The pediatric patient presents pain and functional impotence. The diagnosis is made by means of diagnostic imaging methods X-rays or Computed Axial Tomography. The evaluation of the treatment must be individualized, considering the characteristics of the fracture. Currently there is treatment according to classification and grade, the literature indicates that the treatment of choice for Allman III fracture is surgery.

KEYWORDS : Clavicle, Fracture, Treatment, Pediatrics

INTRODUCTION

The clavicle is a bone of considerable length, shaped like an italic "S", located in the anterior superior part of the thorax. Together with the scapula they form the shoulder girdle.[5]

It is the first bone to ossify at 5 weeks in utero. Its closure occurs until 23 or 25 years of age. By 10 years, the clavicle will have reached 80% of its total length; after this age, only 20% of its length will be modified. During the first years of life, the clavicle has an almost linear growth pattern regardless of sex. But this relationship is altered after puberty: children can present up to twice the relative growth of the clavicle between 12 and 18 years of age; compared to girls, who after 9 years of age will only have 20% relative growth in the total length of the clavicle. [6-7]

Clavicle fractures have usually been managed orthopedically, surgical management being considered only as an exception. Even Socrates postulated that little more than "benign negligence" is needed for its management. The orthopedic management option was consolidated in the 1960s with the works of C. Neer and C.R. Rowe, who reported low rates of non-consolidation and pseudoarthrosis (0.1 and 0.8%); in addition to the low frequency of residual symptoms.[8]

Faced with this panorama, the community leaned towards orthopedic management. For this reason, since the beginning of the previous decade, surgical treatment has

gradually gained importance and, therefore, greater attention has been paid to this injury, considered by some authors as trivial, managing to decrease the rates of non-consolidation of the 15% to 2.2%. Thus, external fixation with plate and screws has established itself as the standard management for this type of fracture. [9-10]

Currently, despite the multiple options available, choosing the most appropriate treatment for each case remains a challenge for the orthopedist and even more so in the pediatric age.

For all the aforementioned, we present the case of a pediatric patient who suffered a clavicle fracture and opted for treatment, surgical intervention, with a favorable evolution.

Methodology

This is a retrospective study, in order to determine which treatment is most beneficial in pediatric Allman III clavicle fracture.

The information and images obtained belong to the medical personnel in charge of the case whose reinforcements rest in the statistical package Excel, Word and JPG.

CASE PRESENTATION

This is a 9-year-old female patient, resident in Pichincha, Ecuador, student, with a prenatal history of 5 normal controls, a history of the birth of a first pregnancy, obtained by caesarean section at 38 weeks gestation without complications, postnatal history with exclusive breastfeeding up to 7 months of age, without personal, family or surgical pathology.

Who 10 days before entering the Military Hospital of Quito suffers a fall from a tree about a meter and a half, with a direct blow to the left shoulder, after which he presents sudden pain and limitation to active movements. It is evaluated by the pediatric area where it is found without any neurological or algic alteration, with vital signs within normal parameters.

Imaging examinations are performed, and the X-rays of the shoulder are observed: fracture of the right clavicle. (Photo 1-2)

Photo 1: Right clavicle fracture

Photo2: 3D reconstruction: fracture of right clavicle

A physical examination was performed, showing ecchymosis at the level of the left clavicle, accompanied by excoriation in the dorsal region, palpation pain 10/10 in the acromioclavicular joint, and a positive key sign.

During his hospitalization, laboratory tests were carried out with 9,000 leukocytes, 60.4% neutrophils, Hemoglobin: 12 mg / dl /, Hematocrit: 35%, Glucose: 97 mg / dl, PCR: 1 mg / dl PCT: <0.01

With all the aforementioned, the clavicle fracture was classified in Allman III, where after evaluation and meeting in Staf of pediatric trauma, the surgical intervention of said fracture was decided. The fracture was reduced under image intensifier control, the nail was inserted through the medial portal of entry of the fracture site and laterally impacted.

Plaque osteosynthesis was the standard method for the surgical management of this fracture; procedure that was performed successfully and without complications. (Photo 3)

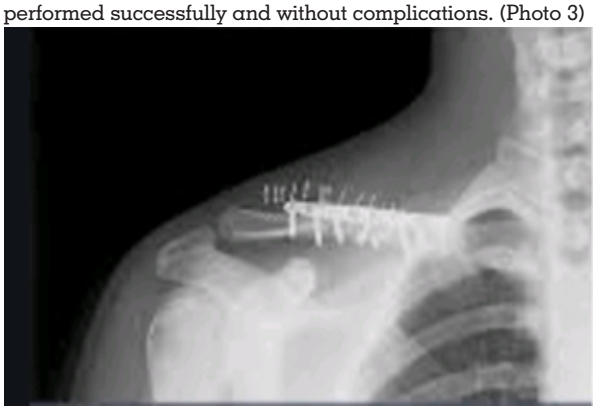

Photo 3: Post-surgical radiography, osteosynthesis and reductionoftherightclavicle

DISCUSSION

Clavicle fractures are very frequent, in childhood. The fracture mechanism is usually indirect, by falling on the shoulder. In the present clinical case, we present a patient with a diagnosis of Allman III clavicle fracture, where surgical treatment was performed.

Traditionally, conservative treatment of middle third clavicle fractures has been advocated as the treatment of choice, even in those fractures where displacement was important. [11,12,13,14]

However, more and more studies are calling these initial data into question, highlighting the poor functional results that a consolidation in a bad position entails.

Several studies have analyzed the efficacy of surgical treatment of these fractures through open reduction and internal fixation, reporting a low number of complications and a high rate of consolidations ranging from 94 to 100%. [15.16] Likewise, they have not presented complications directly related to surgical intervention such as infections or wound dehiscence, rupture or migration of osteosynthesis material. Probably, an adequate and careful surgical technique by opening and closing the tissues on the plate by planes, together with the new low-profile and preformed plate designs, avoids the appearance of this type of complications. [17]

CONCLUSION

Our study objective has been analyzed, according to the bibliography indicates that the treatment of choice in this type of fracture in pediatric age is surgical; due to excellent functional results and a low number of post-surgical complications. However, as in other fractures, the analysis should be based on the individual characteristics of each patient, a careful consideration of the benefits and the relative harm of each intervention.

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