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Komlavi Ehlissou Kolima Akloa
Department of Orthopaedic and Traumatology Surgery, Sylvanus Olympio Teaching Hospital of Lomé. PO Box. 14148, Lomé, Togo

Tchaa Hodabalo Towoezim
Department of Orthopaedic and Traumatology Surgery, Teaching Hospital of Kara. PO Box 18, Kara, Togo

Dellanh Yaovi Yannick
Department of Orthopaedic and traumatology Surgery. Teaching Hospital of Sokodé, Togo

Anselme Tiburce Yafundo
Department of Orthopaedic and Traumatology Surgery, Sylvanus Olympio Teaching Hospital of Lomé. PO Box 57, Lomé, Togo

Gamal Ayouba
Department of Orthopaedic and traumatology Surgery, Sylvanus Olympio Teaching Hospital of Lomé. PO Box 57, Lomé, Togo

Batarabadja Bakriga
Department of Orthopaedic and traumatology Surgery, Sylvanus Olympio Teaching Hospital of Lomé; PO Box 57, Lomé, Togo

Corresponding Author:
Komlavi Ehlissou Kolima Akloa
Department of Orthopaedic and Traumatology Surgery, Sylvanus Olympio Teaching Hospital of Lomé. PO Box. 14148, Lomé, Togo

Isolated bilateral clavicle fractures : A case report

Komlavi Ehlissou Kolima Akloa, Tchaa Hodabalo Towoezim, Dellanh Yaovi Yannick, Anselme Tiburce Yafundo, Gamal Ayouba and Batarabadja Bakriga

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Abstract
Bilateral fracture of clavicle are rare. The injury mecanism is difficult to specify and there are sevral hypotheses that have been developed. The management can be orthopedics or chirurgical.
We reported the 52 years man who presented a bilateral fracture of clavicle following a trafic road accident. The management was chirurgical with satisfatory result.

Keywords: Bilateral fracture, clavicle, chirurgical management

Introduction
Clavicle fractures are common injuries. Many cases of isolated clavicle fractures have been reported incidence of 2% to 5% in adults [1]. Mechanisms which can cause a unilateral clavicle fracture are several, including a fall on an outstretched hand, a fall onto the shoulder, a direct blow on the point of the shoulder and a direct blow on the clavicle [2]. Bilateral clavicle fractures are rare, their incidence is 0,43% of clavicle fractures. The common mechanism of injury is one of a compressive force across both shoulder girdles. Bilateral clavicle fractures are usually associated with hight-energy impact injuries and are commonly associated with other severe injuries [2, 3]. The management of bilateral clavicle fractures can be orthopedic or [4]. We receive in our hospital a case of bilateral clavicle fractures. The patient was managed surgically. We discuss in this paper, the mechanism of injury and the result.

Observation
A patient of 52-Years-old presented to our hospital for pain and limited function of both upper limbs after both shoulder closed trauma following road accident. The patient was riding a motorcycle when he was allegedly chased from behind by a truck. In his fall, he would have been dragged several meters with somersaulting movements. On physical examination, there was a good general condition, the consciousness was good, Glasgow's score was 15. Hemodynamic status was also good. There was clavicules deformation and pain on palpation. Active mobilization of the shoulders was impossible and painful. Examination of the chest, spine and pelvis was normal. X-ray revealed both mid-shaft fractures of the clavicle (figure1). There were no associated lesions. After a week, an osteosynthesis, using dynamic compression plates on the both clavicles, was done at the same time. The patient was installed in the supine position with a block between the scapulae (figure 2). We operated the left clavicle, then the right. The immediate postoperative X-rays showed a good reduction (figure 3). Postoperatively, bilateral arm slings were applied, then shoulders rehabilitation started on the 5th day. At 12 weeks follow up, we observed clinical and radiological union of the fractures and normal shoulder function bilaterally. One year postoperatively, there was no functional complaint (figure 4).

Discussion
Bilateral clavicle fractures are rare. Few cases have been reported in the literature [1]. The mechanisms of injury of bilateral clavicle fractures are different from that of a unilateral clavicule fracture.

Bilateral clavicule fractures usually occurs in high-energy trauma and therefore are associated whith other concomitant injuries. Regulary, in cases of polytrauma, they are overlooked or ignored because the other serious concurrent chest injuries which receive all of the attention [5]. Several mechanisms have been reported. For Guenbdar M *et al*., the mechanism of bilateral clavicle fractures were direct blows to both shoulder girdles, compressive force across both shoulder girdles, direct trauma on one side and indirect violence in a subsequent fall on the other, or two sequential episodes of direct trauma to the shoulders [6, 7]. A fall on both outstretched hand can also cause bilateral clavicle fractures. For our patient, we think that in his fall, he landed on one shoulder, then during the somersaulting movements, he landed on the second shoulder, leading to the fracture of both clavicles.

Clavicles fractures, especially mid-shaft fractures, can be treated conservatively. But recent studies reported many complications, such as non-union and clavicle shortning. These studies have favored the surgical management of clavicle fractures [1, 8]. The management of bilateral clavicule fractures is orthopedic for some authors and surgical for others. There is also no consensus. Marya *et al*. have reported five cases of bilateral clavicle fractures healed after non operative treatment [9]. Nowadays, several authors recommend surgical treatment for bilateral clavicle fractures, especially in cases there was ventilatory function domage [10, 11]. The advantage of surgical management is to limit or reduce the duration of functional disability and to improve the ventilator function in case there was a severe associated chest injury [12]. Surgical management of bilateral clavicle fractures includes external fixation and open reduction and internal fixation. The internal fixation means are, reconstruction plates, angle stable locking T-plates, dynamic compression plates, or intramedullary devices. In our case, we used dynamic compression plate to fix both clavicles and obtained a satisfactory result.

Fig 1: X-ray showing the fracture of both clavicles.

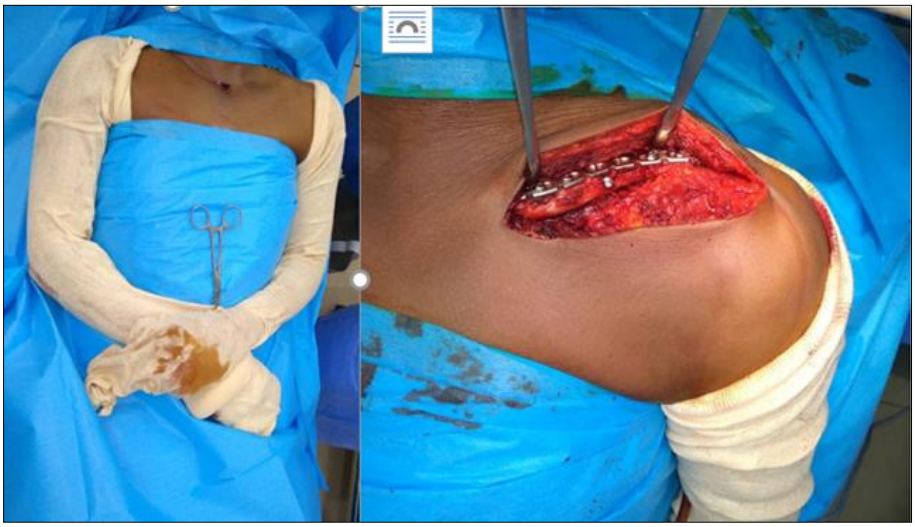

Fig 2: Installation and osteosynthesis of the left clavicle

Fig 3: Control X-ray on first day post-operative

Fig 4: Functional result at 12 months postoperative

Fig 5: Control X-ray on twelve-month post-operative showing consolidation of fractures

Conclusion

Bilateral clavicle fractures occur in high-energy trauma and can be ignored in cases of polytrauma. Osteosynthesis using dynamic compression plates is the best method which allowed to reduce the duration of functional disability and offer better functional results.

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