J Orthopaed Traumatol (2002) 3:109–111

CASE REPORT

K.S. David-West
D.A. Sherlock

Congenital pseudarthrosis of the clavicle: surgery or conservative treatment

Received: 17 June 2002
Accepted: 17 July 2002

K.S. David-West (✉) • D.A. Sherlock
Royal Hospital for Sick Children,
Yorkhill, Glasgow, G3 8SI, UK
Tel.: +44-141-201-0275
Fax: +44-870-128-6550
E-mail: kd-west@ntlworld.com

Abstract Congenital pseudarthrosis of the clavicle is very rare. We report the results of two cases, one managed conservatively and the second surgically. Neither patient had functional deficit, but the one treated surgically ended up with a scar, persisting non-union and a short clavicle. Surgical treatment should be discouraged for this condition.

Key words Congenital pseudarthrosis • Clavicle

Introduction

Congenital pseudarthrosis of the clavicle is a rare condition; single clinician may encounter two or three cases in his lifetime of practice [1]. Fitzwilliams was the first to describe this deformity in 1910 [2]. The right clavicle is most commonly affected and more rarely it affects the left in association with dextrocardia, but Sakkers et al. [3] reported a case of left-sided congenital pseudarthrosis without dextrocardia. Parents usually notice the deformity within weeks of birth or occasionally during clinical examinations or investigations for other conditions.

Case reports

A general practitioner referred to our out-patient orthopaedic clinic a 3-year-old boy with a lump over the right clavicle, which his parents noticed three weeks after birth. There was no impairment of function of the upper limbs. On examination, we found a prominent lump and a painless defect in the middle of the right clavicle (Fig. 1). The boy had full range of movement of the shoulder joint. Both scapulae were of normal size and in the normal positions. The clavicular lengths were equal bilaterally (joint to joint). There were no café-au-lait spots or other musculoskeletal abnormalities.

Radiography of the clavicle showed loss of bony continuity of the middle-third with no reactive bone, consistent with congenital pseudarthrosis of the right clavicle (Fig. 2).

The patient has been very active and has no impairment of function of the upper limb. The parents wished to know the cause of this lump and were not bothered about the cosmetic appearance. No surgical intervention was necessary and the patient was discharged.

The second patient was a 4-year-old boy whose mother had noticed a lump over the right clavicle one year prior to presentation. There was no history of trauma. On examination there was a painless prominent lump and defect in the clavicle.

Radiography confirmed the features of congenital pseudarthrosis of the clavicle. The options of conservative treatment and complications of surgery were discussed with the parents and they preferred to have it corrected.

Excision of the pseudarthrosis, bone graft and stabilization with intramedullary K-wire were carried out. At our review two years later, there was no radiological union and the clavicle was shorter compared to the left clavicle (Fig. 3), but on clinical examination there was no pain, deformity or movement at the surgery site.

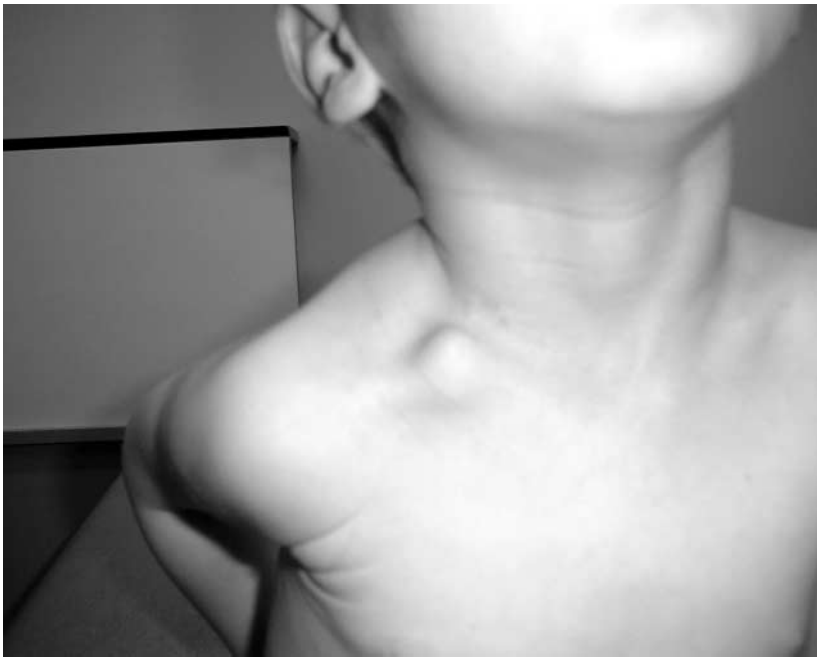

Fig. 1 Prominent painless lump in the middle third of right clavicle (congenital pseudarthrosis of the clavicle)

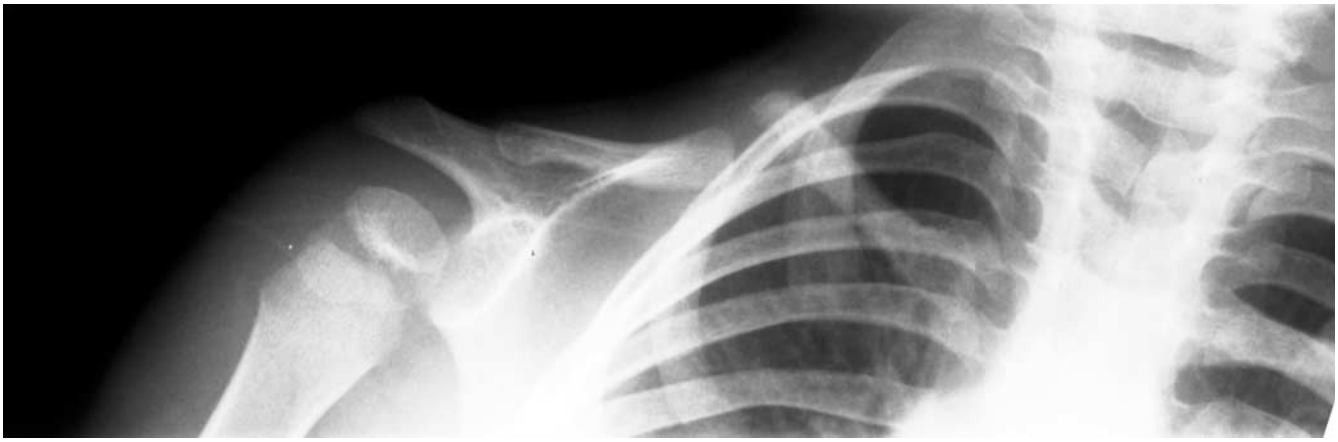

Fig. 2 Radiography of patient in Figure 1 (congenital pseudarthrosis of right clavicle: no surgery was performed on this patient)

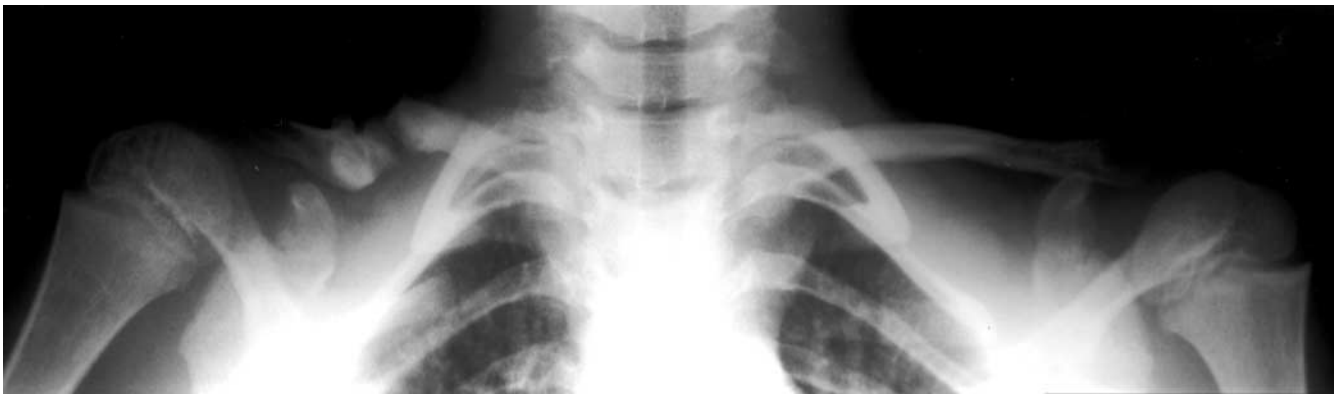

Fig. 3 Two years postoperative radiograph with non-union and shorten clavicle of 4 years of patients who had surgery for congenital pseudarthrosis

Discussion

There is a divergence of views on the treatment of congenital pseudarthrosis of the clavicle and there is no consensus on operative treatment or the method of bone graft and fixation [1, 4, 5]. Koster et al. [5] and Owen [1] favoured excision and bone graft as the treatment of choice.

Alldred's preferred treatment is freshening of the bone ends, onlay graft of rib or iliac bone, and fixing the grafting internally [6].

Our second patient treated by surgery had complications of radiological nonunion and a short clavicle.

Surgical treatment is associated with some complications such as delayed or non-union requiring further surgery, sepsis, scars, keloid, donor site pain and brachial plexus injury [1, 4, 6, 7]. These complications make surgery a less preferred choice of treatment [8].

We now know the natural history of this deformity to be a benign mild swelling with no functional disability [8]. Wall reported this deformity to be asymptomatic and recommended conservative management [9].

We agree that conservative management of this deformity, which is rarely associated with any functional disability, is best. Surgery should be reserved for symptomatic patients.

References

1. Owen R (1970) Congenital pseudarthrosis of the clavicle. J Bone Joint Surg Br 52:644–652
2. Fitzwilliams DCL (1910) Hereditary cranio-cleido-dysostosis. Lancet 2:1466
3. Sakkers RJ, Tjin a Ton E, Bos CF (1999) Left-sided congenital pseudarthrosis of the clavicula. J Pediatr Orthop B 8(1):45–47
4. Cadihac C, Fenoll B, Peretti A, Padovani JP, Pouliuen JC, Rigault P (2000) Congenital pseudarthrosis of the clavicle: 25 childhood cases. Rev Chir Orthop Rep Appar Mot 86(6):575–580
5. Koster G, Kunze E, von Knoch M (1999) Surgical treatment of congenital clavicular pseudarthrosis. Z Orthop Ihre Grenzgeb 137(5):414–418
6. Alldred AJ (1963) Congenital pseudarthrosis of the clavicle. J Bone Joint Surg Br 45B:312-319
7. Toledo LC, MacEwen GD (1979) Severe complication of surgical treatment of congenital pseudarthrosis of the clavicle. Clin Orthop 139:64-67
8. Shalom A, Khermosh O, Wientroub S (1994) The natural history of congenital pseudarthrosis of the clavicle. J Bone Joint Surg Br 76(5):846-847
9. Wall JJ (1970) Congenital pseudarthrosis of the clavicle. J Bone Joint Surg Am 52:1003-1009