Neglected bilateral humeral fractures nonunion: case report and review of the literature

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Abstract

Fractures of the humerus are common injuries arising from trauma of varying degrees and involve various age groups. Bilaterality of these injuries is uncommon and disabling. Complications arising from these are serious. Traditional bone-setter's practice has been identified as the most important risk factor for the development of these complications notably non union. A rare phenomenon of bilateral humeral fractures with severe disability occurring under unique circumstances, managed by traditional bone-setters in an unusual manner and ending up in non union is presented here. Continuing public health education backed by political will on the part of the government in terms of funding and regulation is strongly advocated.

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Key words: fractures, humerus, traditional bone-setters, disabling.

Introduction

Fractures of the humerus are relatively common injuries resulting from high energy trauma such as road traffic accidents.

Fractures of the humerus generally heal readily, requiring neither perfect reduction nor immobilization. Most humeral shaft fractures can be treated non-operatively with a 90% rate of union [1-5].

Non-surgical treatment results in a higher incidence of union and fewer complications than open reduction and internal fixation [6]. Early complications are neurovascular injuries while malunion, delayed union, non union and joint stiffness are late complications.

Traditional bone setting (TBS) practice has been identified as the commonest risk factor for the development of non union[7-12]. Health care has evolved greatly following advances in technology and medical research. Despite the availability of these services, TBS has continued as an alternative health care service.

These methods of treatment lack documented knowledge of anatomy, physiology, pathology and basic principle of injury prevention/control and soft tissue care which have led to limb and life threatening complications [13]. Despite this, TBS practices are well patronized by the community. The indigenous people do not believe in failure of the TBS treatment. Inability to get desired result is blamed on other forces such as the severity of the initial injury, ancestral spirits or attack by perceived enemies [14].

Nonunion complicating traditional bone setter's intervention of unilateral humeral fractures has been reported by several authors [11,15,16]

We present a rare case of non-union complicating traditional bone setter's intervention of bilateral humeral fractures with severe disability.

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Case report

B.A is a 21 year old tiler who hails from Ugieda in Agenebode Estako East LGA, Edo State, Southern Nigeria. He presented in the outpatient clinic with a 20 month history of difficulty in using both upper limbs. While he was standing in front of his father's house, the bumper of a fast moving 504 peugeot saloon car which pulled off after the driver lost control of the vehicle occasioned by a burst tyre, hit him. There was immediate loss of consciousness which he recovered about 12 hours later at a private hospital at Auchi, Estako West LGA, Edo State. He noticed he was unable to use both upper limbs and bear weight on the right leg which had a bleeding wound.

There was no associated bleeding from the oro-facial orifices or other body injuries. He was resuscitated at a private hospital.

Third day on admission, the medical director of the hospital hired the services of traditional bone setter who saw and started co-managing the patient for a closed bilateral humeral shaft fractures and open right tibial shaft fracture. Tenth day on admission, he improved generally and was transferred to the traditional bone setter's home at Ugieda, the patient's village. Herbs were applied topically on both arms and the right leg and many vertical pieces of wood were applied and bandaged circumferentially to splint both arms and right leg for the treatment of humeral and tibial fractures.

The tibial fracture healed several months later and he could stand and bear weight on the right leg. Injuries on the arms did not show a similar improvement which prompted seeking the services of other traditional bone setters. His father thought that with application of the splint the fractures had healed, but was surprised to be told by the last bone setter he met that the fracture had failed to unite and splints were removed to demonstrate the non-union evidenced by abnormal movement which was concealed by the application of the humeral splints.

He was then advised him to seek orthodox treatment, and that flesh had developed between the fracture fragments. The traditional bone setter further advised that after separation of the soft tissue interposition in the hospital, the patient should return to the bone setter's home for further native treatment. He had no co-morbid medical problems. He is a school certificate holder.

The father is an educated secretary turned farmer for lack of white collar job.

The mother is a school certificate holder but farming.

Examination revealed a young man who wasn't pale, not febrile, anicteric, and not dehydrated. There was marked wasting of both arms muscles (fig. 1).

Abnormal movements of both arms were also noticed.

He was unable to use both upper limbs effectively. (fig 2).

Shoulder abduction was limited at 45° bilaterally on active movement and 90° on passive movement. Other movements around the shoulder were limited.

Elbow flexion was reduced to 45° bilaterally by active movement and was 140° on passive movement. Elbow extension lag was at 10°. Functionally, he was unable to get the hand to the mouth, back, comb his hair, dress himself or clean up after defecation without the native splint. Radiological evaluation revealed atrophic non-union of the left and right humerus. The bones were generally osteopenic. The adjoining joints were normal (fig. 3 a & b).

PCV 42%, WBC 8,500c/mm3, urinalysis, urea and serum electrolytes were normal. He was counselled on the nature, extent and possible complications of surgery as well as the need to have the operation in 2 stages. An informed consent was obtained. He was prepared for surgery, operation was done twenty five days after presentation due to his inability to raise the required funds immediately. The right humerus was operated on first. Essential findings at surgery were

extensive fibrosis, soft tissue interposition between the osteoporotic fragments. There was a butterfly fragment that had united with the proximal fragment. Compression plating with ipsilateral iliac cortico-cancellous bone grafting was done. A protective above the elbow POP cast was applied. Following recovery from anaesthesia radial nerve palsy was noticed on the operated side. Five days after surgery the, wound was inspected and found to be clean and sepsis free. The wound dressing was changed and POP cast was applied with a cock-up splint for the wrist. He was discharged and followed-up in the outpatient clinic. The sutures were removed 2 weeks after surgery. Four weeks after surgery there was recovery of the neurological impairment, the POP cast was removed, active elbow and wrist exercises were commenced with a collar cuff sling in place. Range of motion at the elbow joint has improved to the extent that he is able to take the right hand to the mouth. See fig 4.

He is still being followed up in the outpatient clinic, albeit epileptic, due to lack of funds.

Fig 1 showing patient with wasting of the arm muscles.

Fig. 2 showing abnormal arm movement with patient unable to get the hand to the mouth.

Fig 3 (a & b) Radiographs of both humeri showing atrophic nonunion and osteopenia

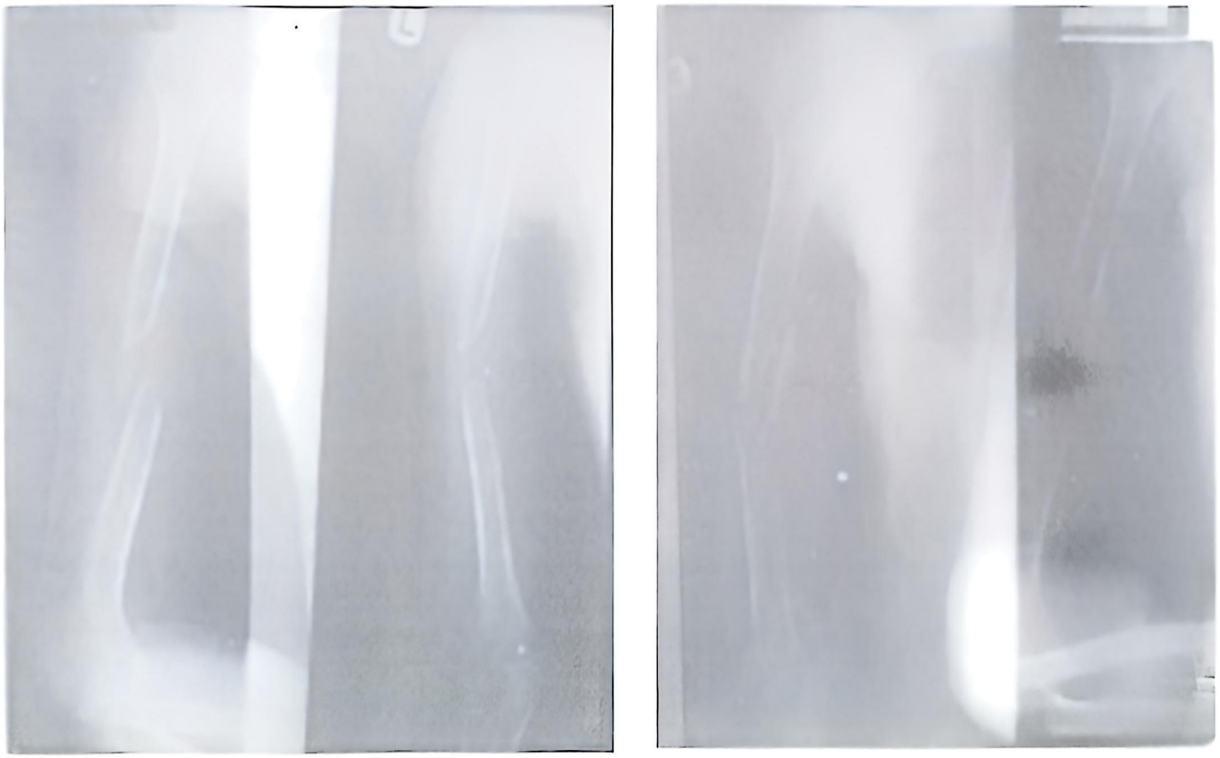

Fig 4 Improved range of elbow motion after surgery

Discussion

Trauma has been described as an emerging epidemic in developing countries.

The young and middle aged groups are the most aggressive and vulnerable as in of this patient.

Traditional bone setters play a major role in the management of fractures in Nigeria, providing primary fracture care for over 70% of population in the rural areas which is where this patient resides. There is a great demand for TBS services in Nigeria or other developing countries for reasons such as cultural beliefs, ignorance, third party advice, cheaper services and fear of amputation at an orthodox hospital[17]. The reason in this case is unique because the attending medical doctor invited the services of the traditional bone setter.

This is a common practice among the non-specialist medical doctors in rural settings who also believe in the efficacy of the native

treatment of fractures.

Delays in the hospital, attitude of health workers, poor quality of service in some hospitals have also been reported [18, 19] as reasons for patronage of the TBS.

Prolonged duration of failed treatment such as reported in this case where the patient was with the bone setters for 20 months would cause loss of significant productivity in an otherwise productive individual. He was neither useful to himself as he was unable to carry out his basic personal physical activities nor to his parents and siblings in the farm.

This led to huge economic and social burden for the family as well as the society.

Since not all the patients treated by TBS report back to the orthodox hospitals (except those with complications), it is believed that there must be many patients who have been successfully treated by them as was found in this case where the tibia #s healed. Even when some of these fractures heal with traditional treatment, bone setters often do not appreciate dangers of the complications arising from their practices [11,20-23]

This was exemplified in this case when both humeral fractures ended up in non union. Attempts at an unofficial collaboration was noticed in the course of care of this patient.

Orthodox doctors should be enlightened on the dangers of such collaboration with an untrained traditional bone setters operating in a manner such as this as the doctor takes full responsibility for whatever complication that occurs in the course of co-managing patients in their hospitals. The management of atrophic nonunion in this case is in keeping with reports of Olasinde et-al[26] Financial constraint is a major problem in the effective management of trauma cases in a resource poor settings as reported in this case.

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