non-weight-bearing mobilisation. Cast immobilisation or fixation are necessary when compliance is poor, when the fracture widens, or when union is delayed. Once pain free movement is restored and radiographs show evidence of healing, partial weight-bearing is initiated, and activities gradually increased. Tension fractures necessitate a low threshold for surgical stabilisation. Displaced stress fractures of the femoral neck represent a surgical emergency and require urgent reduction and internal fixation which can be supplemented with vascularised bone graft.²⁴

Stress fractures of the femoral neck are a recognised cause of pain in athletes at all levels of competition and can also occur in children and adolescents. Early recognition of these injuries is important to prevent the morbidity associated with fracture displacement and allow a return to full function.¹³ Preventative measures have been shown to be of benefit in military recruits,^{25,26} and a similar approach at a primary care level is of importance so that appropriate referral and management can be instituted.

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Ring avulsion injuries and the basketball player

B R Pynn, T P Bartkiw, H M Clarke

Abstract

As basketball increases in worldwide popularity, more epidemiological data on injury rate and type will be documented. A serious ring avulsion injury (Urbaniuk Class I) is here reported in an adolescent incurred while attempting a slam dunk. The management of this injury is discussed as well as safety concerns for coaches and supervisory staff.

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Keywords: basketball injury; ring avulsion; finger; safety.

In basketball, all players are required to perform a magnitude of skilled activities involving sudden and rapid changes in speed and direction.¹ A combination of unprotected exposure with unpredictable changes in force plays a large part in the well documented increasing incidence of injuries during basket-

ball play, at both the professional and recreational level.^{1,2} Ankles are the most injured joint of the body during basketball play, representing approximately 18-33% of all injuries.^{3,4} Finger injuries account for approximately 11-43% of all injuries, with contusions and sprains of the proximal interphalangeal and metacarpophalangeal joints representing 90% of all hand injuries invoked.^{1,3,4} Rarely reported are the unusual lacerations occurring from slam dunking the basketball, especially those requiring surgical intervention.⁵ No other reports of avulsion injuries related to basketball in a single digit could be found. A case is reported here of a ring avulsion injury incurred during slam dunking the basketball.

Case report

The patient, a 6 foot, 180 pound right handed 16 year old boy, had been playing basketball during high school gym class and attempted to slam dunk the basketball. As he was coming back down, he caught his ring in the netting of

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Figure 1 Ring causing the avulsion injury.

the basketball hoop. This resulted in an almost total degloving of his right ring finger. Physical examination in the emergency room showed a right ring finger avulsion injury to the soft tissue distal to the proximal interphalangeal joint with a viable tip (Urbaniuk Class I). The large metal ring was still intact (fig 1) and had become wedged in between the distally based avulsion flap in the ring and the finger.

Examination showed that the distally based flap was extremely cyanotic and there was absence of sensation in the distal finger. The flexor tendons were intact and the finger tip was viable.

The radial digital nerve was found to be avulsed, but both ends could be approximated. The ulnar neurovascular bundle was intact. The underlying soft tissue was relatively intact, the flexor sheath was untraumatised, and extensor apparatus was intact. Debridement and irrigation were performed, and the radial digital nerve was coapted with two 9-0 Nylon sutures under the microscope. The perfusion of the skin improved after redraping, and was loosely closed with 5-0 Novafil sutures and a sterile dressing protective bandage applied.

Recovery was uneventful, and the patient was discharged four days later with instructions for a home physiotherapy programme. After two months, the patient's range of motion was almost normal. At two years follow up, the range of motion was within normal limits. Sensation had returned to normal and the scar was acceptable.

Discussion

Ring avulsion injuries may range anywhere in severity from a simple abrasion to a complete degloving or amputation of the finger and have been classified by Urbaniak *et al.*⁶ Class I injuries have adequate circulation. A standard soft tissue treatment should be sufficient in these cases. A Class II avulsion is when the finger does not have adequate circulation and requires vessel repair to preserve viability.⁷ In Class III injuries, the finger sustains complete degloving or complete amputation. In these cases, judgment is crucial because, although revascularisation can restore viability in a complete amputation of a finger, the potential for function is limited.

The avulsed finger is a severe injury that requires prompt treatment for successful intervention. Methods that have been used to

salvage avulsed fingers include microsurgical anastomosis of the digital vessels or the use of neurovascular island flaps.⁸ The results using microvascular surgery have been better than those using neurovascular island flaps.⁶

Few reports in the literature have pinpointed the number of injuries related to ring avulsions and basketball play. One study reported that in 1989 approximately 487 000 people in Washington, DC, alone visited their emergency departments for injuries related to non-professional basketball play.⁹ A more recent Canadian survey showed that basketball injuries represented 4% of all emergency room injuries.¹⁰ Sports injuries were the leading contributor of injuries seen in the emergency room for children 5-19 years old in this 10 hospital survey. Basketball injuries were ranked first in girls; of sports injuries in boys, the basketball injuries ranked second, exceeded only by ice hockey injuries. Considering then that a significant proportion of the population are involved in basketball either at the professional or recreational level, the rate of finger injuries related to slam dunking the basketball may be quite high.

Basketball has many hazards that are not commonly mentioned to the player and that are not identified in the literature. Each player has regular ball contact but cannot use most protective gear such as splints or tape. This leaves the hands and fingers susceptible to different types of injury.¹ The rim of the basketball hoop has flanges at the back attaching it to the backboard. These are generally made of sheet metal, sometimes with sharp edges protruding. There are also sharp edges under the lateral sides of the rim where the supporting arms are welded to the rims. One other area of concern is where the hooks hold the netting in place. Sometimes the netting may be pulled out from the hook, or the hook itself may become broken and therefore very sharp. In the interests of safety, these areas should be inspected visually on a daily basis and checked manually on a semi-annual basis by the teachers, coaches, or supervisory recreational staff.

It is also very important for the implementation of proper supervision and instruction for students playing basketball. This includes stressing the importance of removing any jewellery, especially necklaces and rings, that may become entangled in hands or clothing of other players. Rings are especially dangerous with their potential for being caught in the net or any aspect of the hoop or backboard. As the quest for playing "above the rim" increases in popularity, the coach must be aware that the student will continue to experiment with slam dunking, many times inaccurately, therefore an awareness of safety is the key to preventing future injury.

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Bilateral locked posterior shoulder dislocation in a footballer

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Abstract

Posterior dislocation of the shoulder is an uncommon injury, accounting for between 2% and 4% of all shoulder dislocations. It occurs most frequently in patients following convulsions or direct anterior force to the shoulder. It is a particularly uncommon injury in sport. This paper reports an unusual case of bilateral locked posteriorly dislocated shoulders in a previously healthy young man who fell while playing football.

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Keywords: posterior dislocation; shoulder; football.

Case report

A 26 year old man presented to the accident and emergency (A&E) department with bilateral shoulder pain. He said that he had fallen backwards onto his right shoulder while

Figure 1 Anteroposterior radiographs of right and left shoulders.

Figure 2 Axial view radiographs of right and left shoulders.

playing five-a-side soccer on hard ground. When he hit the ground he rolled onto his left side experiencing sudden pain in his left shoulder at the same time. He remained conscious throughout the event and had full recollection of the fall.

He was examined by the A&E doctor who found tenderness and limited range of movements in both shoulders. There was no asymmetry of the shoulders. Anteroposterior radiographs of both shoulders (fig 1, A and B) were thought to be normal by the doctor. Consultation was sought with a senior colleague because of the severity of symptoms with seemingly normal radiographs. The senior doctor noted the patient's inability to externally rotate the shoulders which suggested posterior dislocation and so axial views of the shoulders were requested. These clearly showed both shoulders to be dislocated posteriorly (fig 2, A and B).

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