PARTIAL EXCISION OF THE CLAVICLE FOR NONUNION IN NATIONAL HUNT JOCKEYS

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National Hunt jockeys suffer a disproportionate number of clavicular fractures and their return to riding may be considerably delayed by refracture and symptomatic nonunion, with obvious implications. We report six such cases in which excision of the clavicular fragment distal to the fracture was associated with an early return to work and no recurrent injury to the shoulder.

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Fracture of the clavicle is a common condition, constituting 44% of injuries to the shoulder girdle (Rowe 1968). In National Hunt jockeys it comprised 41% of 800 bony injuries over a nine-year period (Turner, personal communication, 1994). One of the earliest documented accounts of clavicular fracture was that of the fatal accident in 1702 in which William III fell from his horse. Horse-riding has been described as the most dangerous sport in the UK (Spar 1977).

Diagnosis is usually straightforward as the clavicle is subcutaneous and palpable. Treatment is often uneventful but all methods require a period of restriction of movement which, in the case of jockeys and other professional sportsmen, may lead to inability to compete for several months. The regulations of the Jockey Club currently require a period of three weeks off racing after such an injury.

Refraction, an occupational hazard, and symptomatic nonunion may necessitate further prolonged periods away from riding. Repeated 'soft' falls may result in recurrent disruption of a fibrous union and eventually in nonunion.

Partial excision of the clavicle has been described previously (Patel and Adenwalla 1972), but has not become an accepted method of treatment for any group of patients. The potential financial impact on a jockey who is unfit to race for several months due to symptomatic nonunion or refracture is considerable and these patients welcome treatment which involves a primary, potentially curative procedure.

We have reviewed six National Hunt jockeys with nonunion of repeatedly injured clavicles who have been treated by excision of the clavicular fragment distal to the fracture site.

PATIENTS AND METHODS

The six jockeys had all been treated by partial excision of the clavicle, five of them by one of the authors (MAF), using a standard approach (Fig. 1). In each case it had been necessary to divide the intact coracoclavicular ligaments, and to excise approximately one-third of the clavicle. The median follow-up was 21 months (14 months to 29 years). We interviewed each patient to determine the effect of the procedure on his personal and professional lifestyle, and examined the affected shoulder and arm.

RESULTS

Details of the six patients are given in Table I. All had initially been treated by immobilisation and before operation each had suffered between three and eight further injuries to the same clavicle from falls while racing. In five patients the procedure was performed during the close season, but the jockey treated during the National Hunt season was able to return to racing within ten days. All six returned to first-class racing.

None of the jockeys has missed racing because of further injuries to the same clavicle since surgery, and each rated the procedure as 10 on a 0 to 10 analogue scale of dissatisfaction-satisfaction. One complained of an unsightly surgical wound, and another commented on a sensation of weakness in the affected arm, although there was no objective evidence of this.
DISCUSSION

Most fractures of the clavicle (82%) occur in the middle third, mainly at the junction between the middle and lateral thirds (Rowe 1968); 94% of these injuries are a result of direct trauma to the lateral aspect of the shoulder, rather than a fall on the outstretched hands. These types of injury are common in high-velocity and contact sports (Stanley, Trowbridge and Norris 1988).

In general, and given sufficient time, excellent results are obtained with non-operative treatment. Conventional methods include simple support (Neviaser 1963), closed reduction, such as by a figure-of-eight bandage (Quigley 1950), open or closed reduction with internal fixation by plates, screws or pins (Müller, Allgöwer and Willenegger 1970), or open or closed reduction with external fixation (Schuind et al 1988). Excision of the fracture with bone grafting has also been used. None of these methods is ideal for an active National Hunt jockey, since convalescence may take up to six months. Further surgery may be required to remove an internal fixator, retrieve a migrated pin or to treat refracture through an implant. Pain and malunion with deformity are common sequelae of fracture excision with bone grafting (Elkin and Cooper 1946).

National Hunt jockeys with symptomatic nonunion or recurrent fracture of the clavicle are a specific group in which conventional treatment may be unacceptable. Although nonunion of a fractured clavicle is rare, ranging from 0.1% after closed treatment to 4.6% after open reduction and internal fixation (Moore 1951; Neer 1960), the relative frequency may be greater in jockeys. This is probably related to the increased number of predisposing factors for nonunion in jockeys who are eager to return to full activity. These include inadequate immobilisation (Sakellariades 1961), refracture (Yates 1976), and the severity of the initial injury (Jupiter and Leffert 1987).

Excision of the clavicular fragment distal to the site of nonunion or fracture is potentially curative. Abbott and Lucas (1954) have warned that excision of the lateral third of the clavicle alone may lead to instability of the remain-
ing fragment, but other authors report satisfactory function (Gurd 1941). Each of our patients was able to return successfully to a physically-demanding occupation and was satisfied with function and appearance. One jockey reported that during subsequent falls he attempted to manoeuvre himself to impact on the operated shoulder, since he had discovered that any injury which he sustained would be less severe.

**Conclusions.** Partial excision of the clavicle involves a single procedure, avoids a lengthy absence from work with its financial implications, particularly relevant to jockeys, and is a permanent form of treatment. It produces little morbidity and is well suited to the management of non-union and refracture in this small group. Jockeys appear to be able to return to full activity rapidly and subsequent falls while riding have no serious sequelae relating to the injured clavicle. The procedure is recommended for this unique group of patients who represent a difficult problem of management.

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**REFERENCES**


