

Disability Following a Simple Wrist Fracture

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A large proportion of patients are entitled to chronic disability compensation following a simple wrist fracture

A Colles' fracture (broken wrist) is one of the most frequent fractures in the western world, accounting for one sixth of all fractures. It is seen by most orthopaedic surgeons as a trivial injury associated with little long term morbidity and, as a consequence, a client with such an injury is likely to have little success in attracting support from the legal profession on a "no win, no fee" basis. Studies from outside the United Kingdom suggest that a large proportion of patients will have problems from their wrists or hands after severe fractures. We therefore studied a London inner city population who had suffered a Colles' fracture a minimum of four years previously, and who had not been involved in legal proceedings. We found that 32 per cent of patients reported problems from their wrists, the majority of whom had sustained a simple or very simple type of fracture. This indicates that almost one third of patients with fractures which were previously thought to lead to complete recovery may in fact be entitled to chronic disability compensation. Such findings have not previously been reported in the medical or legal literature.

Introduction

Colles' fractures are one of the most common fractures encountered in orthopaedic practice, accounting for one-sixth of all fractures that are seen and treated in accident and emergency departments (Jupiter, 1991). Colles, a surgeon working in Dublin at the start of the nineteenth century, suggested that patients after a fracture "would have a full painless range of movement at the wrist and the limb will at some remote period again enjoy perfect freedom in all its motions and will remain undiminished through out life", (Colles 1814). This good prognosis is still accepted by the majority of orthopaedic surgeons in the U.K. as the true outcome following such injuries.

However, more recent studies suggest that a smaller proportion of patients with particular complicated fractures may suffer chronic problems. Grip weakness has been reported in 8.9 per cent of patients (Eelma and McElfresh, 1983). A Scottish group has shown that this is particularly likely if the fracture heals badly, (McQueen and Caspers, 1988). Such malunited fractures tend to occur in people who have had severe wrist injuries resulting in initial marked deformity, as shown by Swedish researchers (Abbazadegan, Jonsson and von Sivers 1989). There is no recent available material on discomfort following simple fractures of the wrist in an urban population who are not involved in litigation procedures.

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The purpose of the present study was therefore to assess the incidence of long-term unsatisfactory outcomes following simple Colles' fractures in a previously healthy inner city U.K. population, the members of which had no financial interest in exaggerating their disability.

Patients and method

This study included all consecutive patients treated at Guy's Hospital for Colles' fractures between 1990 and 1993 who were treated in a plaster of paris cast. Patients with previous wrist injuries, osteoarthritis and those under sixteen years of age, were excluded from the study. All patients had undergone similar treatment, with manipulation of the fracture under regional anaesthesia and immobilisation in a below elbow cast. A total of 98 patients were included with an average age of 56.7 years ranging between 17 and 91 years of age.

All the initial radiographs were graded for severity of injury using the well-documented classification system (Lindstrom, 1959) by a blinded observer prior to review of the questionnaire. The classification ranges from grade I, which is the mildest fracture with minimal displacement of the broken bones, to the most severe grade IID, which is the most crushed and displaced fracture.

All the patients were written to, asking if they were happy with their outcome, after their fracture, whether they had any problems from their wrist and if they would like a review appointment.

A computer software program, Microsoft Excel was used to create a data base and for statistical comparison. The data base contained the following data: Age, dorsal angulation, radial shortening, sex, fracture classification. We used Microsoft Excel for statistical analysis to compare the average age in each Lindstrom group experiencing problems against those that did not have problems.

Results

A total of 31 patients (32 per cent) responded to the questionnaire, feeling that they did not achieve a good result following their fracture. Two-thirds of these had sustained a fracture of severity grade I or IIA, which is considered very simple or simple.

The table below gives the age of patients by Lindstrom group (see below p. 217 for the Lindstrom classification), divided into those patients who felt they had a significant problem with their wrist or hand and those that did not have a problem.

Lindstrom classification	Problem wrist, age	No problem, age	T-Test p value
I	49(24-74)	51(20-83)	0.73
IIA	51(26-79)	60(20-90)	0.54
IIB	53(30-88)	71(51-91)	0.06
IIC	55(25-70)	63(16-90)	0.64
IID	37(31-43)	43(39-47)	0.49
AVE. AGE	51.3	59.3	0.07

There was no significant difference in age between those patients that had problems with their wrists and those that did not.

The table below shows the total number of patients in each Lindstrom group divided into those with problems and those without.

Lindstrom group	Number of patients with problems	Number of patients with no problem
I	11	22
IIA	10	21
IIB	5	9
IIC	3	13
IID	2	2
TOTAL	31	67

Discussion

The majority of patients treated for a Colles' fracture undergo manipulation and immobilisation of their fracture in a cast. This is removed at six weeks and in the majority of patients the fracture has united; these patients are not routinely followed up.

Complications after Colles' fractures are well recognised and can cause significant problems to the patient. They include dysfunction in the median nerve, malunion, wrist arthritis, stiff fingers, tendon rupture and reflex sympathetic dystrophy. Cooney et al, 1980, found such complications in 31 per cent of their patients. Such problems can cause significant suffering for the patient and their presence is simple to document leading to little medico-legal argument.

What may not be widely appreciated is that a significant portion of patients will go on to develop subjective problems with their wrists after Colles' fractures. It does not seem to be important how severe the original injury was, nor how old the patient was when they suffered their injury. Approximately one-third will go on to have subjective problems with their wrists or hands after their fracture.

The standard medico-legal text referred to by orthopaedic surgeons, "Medico-legal reporting in orthopaedic trauma," quotes several papers on the question of subjective problems with the wrist after a Colles' fracture. These papers all have intrinsic weaknesses when used as references for medico legal practice in the U.K.

Bacorn and Kurtzke (1953), reported that 97.1 per cent of 2,132 cases retrospectively reviewed had subjective symptoms. This group was, however, composed of patients on the files of the Workmans Compensation Board of New York State. This group of patients were all involved in compensation claims, suggesting that they had on-going wrist problems and as such, would have significantly affected the findings in this study. Both Frykman (1967) and Lindstrom (1959) reported high rates of subjective problems, 52.3 per cent and 45.8 per cent respectively. Both these papers are now over 30 years old and neither study is of U.K. patients. Eelma and McFresh (1983) specifically looked at the outcome in young patients, which is not a representative group of the patients that normally sustain this injury.

Our group of patients is a United Kingdom inner city population, with no potential financial gain from their injury. As far as we are aware this group of patients has not been studied before. Based on one postal questionnaire we discovered that 32 per cent of our patients had subjective problems with their wrists. This figure is likely to underscore the true proportions, due to the intrinsic problems with postal questionnaires reaching all the patients they are supposed to reach. It is almost certainly an under-estimation of the number of patients that develop subjective problems with their wrists after a Colles' fracture.

Development of problems was not related to the severity of the original injury, suggesting that patients with lesser degrees of trauma may still have significant problems with their wrists and/or hands after a Colles' fracture. The patients' age did not statistically affect the risk of them

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developing a problem after their injury, although those that did develop problems had a younger average age than the problem-free group and were below retirement age.

This study shows that a third of patients will have chronic disability after a Colles' fracture and that their average age of 51—14 years prior to retirement represents a large number of potential working years lost.

Thirty-two per cent is a significant proportion of patients experiencing problems after this very common injury many of whom, as a result of preconceived ideas, may not be being appropriately served by the medical or legal professions.

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Lindstrom classification

- I Non-displaced fracture
- IIA Fracture outside the joint with joint surface bending backwards
- IIB Fracture through the joint with joint surface bending backwards
- IIC Fracture outside the joint with severe displacement
- IID Fracture through the joint with severe displacement
- IIE Fracture through the joint with comminution and severe displacement