Lesson of the Week

Skin avulsion during manipulation of fractures

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The necessity of manipulating fractures in patients taking corticosteroids long term should be carefully considered; manipulation should be performed by an experienced surgeon

Introduction

Colles' fracture is one of the most common fractures and may present a challenge. The incidence increases with advancing age and with the onset of osteoporosis. Whether the anatomical result of manipulation greatly affects final outcome is controversial.¹⁻⁴

Patients taking corticosteroids long term have accelerated development of osteoporosis as well as atrophy and fragility of the skin, subcutaneous connective tissue, and blood vessels.⁵ As a result, manipulation of fractures in these patients is more hazardous and, as in the three cases described, may result in skin avulsion.

Case reports

Case 1—An 80 year old woman fell, sustaining an impacted Colles' fracture of her right wrist. For six years she had been taking inhaled and intermittent courses of oral corticosteroids for asthma. The fracture was manipulated under a haematoma block by a senior house officer. This resulted in no change in the position of the fracture but an 8 cm×6 cm area of skin was avulsed from the dorsum of the wrist. Non-viable skin was debrided 48 hours later and a split skin graft taken from the left thigh. This was meshed and applied to the defect (figure). The residual graft was applied to the donor site. Both sites were healed at 14 days, and treatment was continued in a volar plaster slab for a total of four weeks. At eight weeks' review the patient was free of pain with a good functional result.

Case 2—A 72 year old woman was admitted to hospital after a fall in which she sustained a fractured neck of femur and a moderately displaced, impacted Colles' fracture of the left wrist. She had been treated for 20 years with courses of oral corticosteroids for rheumatoid arthritis. Under a general anaesthetic the

femoral neck fracture was internally fixed and the wrist fracture manipulated. The skin on the dorsum of the wrist was torn, resulting in a 3 cm×5 cm detached flap. This was replaced and covered with a non-adherent dressing. The wrist was immobilised in a volar plastic slab to allow access to the area. The replaced skin survived and satisfactory healing occurred, but the fracture slipped to its original position. This position was accepted, and the volar slab was maintained for four weeks. Review at 12 weeks showed a functional result acceptable to the patient.

Case 3—A 76 year old woman who depended on steroids for treatment of obstructive airways disease was seen in the accident department, having sustained a Colles' fracture of the right wrist. The manipulation under regional anaesthesia resulted in an unsatisfactory reduction. During the manipulation a 5 cm×4 cm area of skin was avulsed from the dorsum of the wrist. The resulting defect required split skin grafting and took four weeks to heal, after which the patient was lost to follow up.

Discussion

In all three patients skin damage occurred as the result of attempted reduction of the distal fragment by pushing directly on it, but in none was the final anatomical result improved.

In the controversy over the management of Colles' fractures the relation between the final anatomical result and the final functional result is a central issue. In 1950 Cassebaum stated that few patients had much pain one year after Colles' fracture and none had serious functional disability five years later.¹ This has been confirmed by some authors² and refuted by others.³ More recent reports indicate that the final position correlates with objective tests of function,⁴ but it has been shown that there is little value in remanipulating a Colles' fracture in an elderly patient if it redisplaces after primary reduction.⁶

As well as skin damage, elderly patients may experience delayed healing of the donor site. The crucial factor governing the rate of healing of the donor site is the residual dermal layer.⁷ The dermal thickness declines after the age of 60,⁸ so the morbidity associated with a split skin graft donor site is greater in elderly patients. This problem is compounded by the effects of corticosteroids. For this reason in case 1 part of the meshed autograft was reapplied to the donor site to promote healing.

The value of manipulating a Colles' fracture in a patient with fragile skin resulting from consumption of steroids should be carefully considered. It should be remembered that the functional demands of elderly people and invalids are not great. If manipulation is

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Meshed skin graft on damaged wrist of elderly patient who had been taking corticosteroids (case 1)

necessary it should be performed by an experienced surgeon, avoiding direct pressure over the distal fragment, which may damage the skin.

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- 5 Ryan TJ. Diseases of the skin. In: Weatherall DJ, Ledingham JGG, Warrell DA, eds. *Oxford Textbook of Medicine*. 2nd ed. Oxford: Oxford University Press, 1987:20(94).
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- 7 Southwood WFW. The thickness of the skin. *Plastic and Reconstructive Surgery* 1955;15:423.
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The Health of the Nation: responses

Children's health

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The main theme of *The Health of the Nation*¹ is the prevention of ill health and the promotion of good health. One of the suggested key areas is the health of pregnant women, infants, and children. I have been asked to consider the health of infants and children and to discuss what if any are the appropriate targets and how they should be met.

Selection as key area

The consultative document proposes three criteria for the selection of key areas: the areas should be a major cause of premature death or avoidable ill health, effective interventions should be possible, and it should be possible to set objectives and targets. On this basis there is ample justification for including child health as a key area.

The key areas proposed do not have like characteristics; some are concerned with avoiding diseases or their effects (such as asthma) and others with avoiding hazards (such as accident prevention). All the areas are as relevant to children as they are to adults, indeed in many instances, more so. Strategies for disease prevention are likely to have most impact in childhood and the risks of the hazards to health are often greater in the vulnerable years. The benefits of a clean safe environment, immunisation programmes, a healthy diet, avoidance of accidents, psychological wellbeing, etc, are more likely to be greater and last longer when applied to infants and children. The health of children is not only an area it is central to the whole strategy, and so it seems inappropriate to isolate parts of it for specific targets.

Can the government deliver, and if it cannot will it do more harm than good to be identified as a key area? Over the years the government has issued documents urging health promotion and sickness prevention without clear directions on how their recommendations should be implemented. To succeed the strategy has to be central to all health service activities—primary, secondary, and tertiary; health promotion should not be the responsibility solely of enthusiasts with little or no clinical responsibility. The cardiac surgeon should aim at avoiding the need to operate, not at being rewarded for increasing trade.

The authors of the strategy are optimistic because of the opportunities presented by the NHS reforms and the release of the Department of Health from day to day management of services. That suggests a confidence in the future which those of us who see patients would like to share. It was the reformers of 1974 who failed to appreciate the importance of the public health

Possibilities for improving child health and targets in green paper

The scope for safeguarding and improving children's health includes:

(i) For younger children

- Immunisation against childhood disease
- Early detection of congenital and acquired abnormalities including impairments in hearing, vision, growth, and development

(ii) For older children

- Promotion of healthy lifestyle
- Prevention (particularly through education) of smoking and misuse of alcohol and drugs

(iii) For all children

- Accident prevention and safety education
- Improvements in the quality of the environment, particularly housing
- Avoidance of smoking in the household
- Prevention, identification, and treatment of emotional and behavioural problems
- Prevention of dental decay

TARGETS

To increase nationally the proportion of infants who are breast fed at birth from 64% in 1985 to 75% by 2000.

To increase nationally the proportion of infants aged 6 weeks being wholly or partly breast fed from 39% in 1985 to 50% by 2000.

By 2003, nationally, 12 year olds should on average have no more than 1.5 decayed, missing, or filled permanent teeth.

function and planned the contraction of the child health and school medical services, whose primary tasks were precisely those outlined in this new document. Nevertheless, children's doctors have every reason to be optimists and tend to trust those in authority, and we would all like to see the government succeed in this initiative.

Appropriate targets

Though the overall objectives for the health of infants and children are in general admirable, the three proposed targets are weak (box). Two are concerned with breast feeding. There was a welcome increase in the rate of breast feeding during 1970-80² but there has

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