Casualty fractures

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Principles

For the purpose of this article casualty fractures are defined as those which may be treated totally in the Accident Department, or treated there initially and then referred to a fracture clinic. The exact definition varies with different hospitals and the seniority of the casualty officer. The casualty officer generally has not the knowledge or experience to treat many fractures, and if he is in doubt should not hesitate to call in the orthopaedic surgeon.

History

With any fracture the history is important; the patient may often not be able to give an exact history of the injury, but slight trauma makes one suspect a pathological fracture. The nature and direction of the force may indicate that a limb

with an apparently simple fracture has sustained severe damage to the soft tissues, which may necrose later. The age of the patient has a bearing on the fracture sustained; similar injuries in different age groups may cause different fractures (Fig. 1).

Examination

A patient with a suspected fracture should be examined carefully but thoroughly. If handled gently the patient will gain confidence and allow a much more thorough examination. Skin damage, swelling and deformity are all looked for before the patient is touched. Note the exact site of tenderness, to be later correlated with the X-ray examination; both sensation and the pulses distal to the fracture are examined. Movement at the fracture must not be attempted as the elicitation

FIG. 1. Fracture separation of the radial epiphysis (adolescent), fractured scaphoid (young adult) and Colles' fracture (elderly). The same causal force, but the patient's age determines the fracture.

of crepitus is an uncivilized method of diagnosis, but the patient is asked to move the limb distal to the fracture to determine any muscle or tendon damage.

X-ray

The final diagnosis of a fracture is made on the X-ray. Any suspect limb must be X-rayed. Films must be taken in at least two planes and cover a wide enough area. Remember the pitfalls of X-rays: (1) The fracture may not show up on the original film, only later, as with many scaphoid fractures. (2) Where a forearm fracture is suspected both upper and lower radio-ulnar joints must be included to make sure there is no dislocation of either joint. (3) If you are not sure of epiphyses in children X-ray the other limb for comparison.

When looking at the X-rays you should try to correlate any tender point and examine this part of the bone carefully. Remember that the casualty officer has an advantage over the radiologist, as he sees both patient and X-ray. Even so, it is important that some system exists in the department to connect X-ray reports with casualty record cards so that any 'missed' fracture may be 'discovered' and the patient treated.

Description of the fracture

It is important for the casualty officer to describe a fracture accurately: the situation in the bone, whether the fracture is transverse, spiral or oblique, and the displacement of the distal fragment relative to the proximal fragment. Accurate description means sound advice on the telephone.

TREATMENT—Introductory remarks

Immobilization does not make fractures unite, and not every fractured bone requires treatment, but every fractured limb requires some sort of treatment even if only reassurance of the patient. A fracture is reduced, splinted in the reduced position until consolidated, and the soft tissues treated. An undisplaced fracture obviously does not require reduction, but may need splinting to prevent displacement. If it is impossible to hold reduction, as with a fractured os calcis, then it is futile to reduce it. If it is impossible to reduce a fracture then holding it in the unreduced position in plaster is only perpetuating malunion and encouraging stiffness. There is, however, soft tissue damage which must be treated, and treated early before oedema coagulates and soft tissues 'consolidate', causing permanent pain and stiffness. This method of fracture treatment may be called supervised neglect, in that the fractured

bone is not treated but the soft tissues are; it should not be taken to mean neglect of the limb as a whole.

Reduction

A fracture may be reduced by traction, manipulation or operation. Manipulation is a scientific process reversing the causal force of the fracture, done under an adequate anaesthetic, not a smash and grab raid under anoxia.

Holding reduction

This may be by continuous traction, plaster of Paris or operation. In Casualty fractures traction applies only to the upper limb. The uses and misuses of plaster will be discussed later. How long a fracture requires to be held varies, but splintage should not be removed until consolidation has occurred. This must be confirmed clinically and radiologically. A useful guide is that a spiral fracture in the upper limb takes 6 weeks to consolidate. A fracture in the lower limb takes twice as long, and with a transverse fracture the time is also doubled because of the smaller area of contact. A child will need half as long as an adult (Table 1).

TABLE 1
The expected time for fracture consolidation

	Upper limb	Lower limb
Spiral	6 weeks	12 weeks
Transverse	12 weeks	24 weeks

Soft tissues

The tissues around a fractured bone are swollen and oedematous; to prevent the oedema fluid causing adhesions and stiffness it must be eliminated before it solidifies. To get rid of fluid elevation helps; bandaging resists further fluid, but only activity can pump it away. Compression bandaging is with a crepe or Bisgaard bandage. Elastic adhesive bandages should never be used; as the oedema varies, so does the size of the limb, and any bandage should be reapplied as soon as it fails to give the necessary support to the limb. If an adhesive bandage is used changing it causes unnecessary suffering to the patient. All unsplinted joints should be actively exercised.

Plaster of Paris

Any plaster used to splint a fracture must be adequate to prevent displacement without splinting joints unnecessarily. Before applying any plaster one should consider: (1) Is it needed at

all? (2) Is it effective? (3) Is it too extensive? Often in the upper limb a plaster slab is adequate to maintain reduction.

No plaster applied to a recent fracture should be complete, but should be padded and split in such a way that when the limb inside swells the plaster does not act as a constricting force. When the initial swelling has settled the plaster may be completed or replaced with safety.

Any patient sent away from hospital with a plaster on must be warned of the symptoms, signs and dangers of general or local pressure. General pressure, from too tight a plaster, will cause pain in the limb, with pins and needles and later numbness in the fingers or toes. The patient may also notice that the extremities have become blue and swollen. He should be told that if this happens the limb should be elevated, and if the symptoms do not subside in 1 hr he should return to hospital. The patient with localized pressure feels pain under the plaster at one point, usually over a bony prominence. This is because the skin is being compressed between the bone and the plaster. The pain will persist until pressure necrosis of the nerve endings in the skin has occurred, after which little or no pain is experienced. It is important in these patients to relieve the pressure as soon as possible, either by elevating an edge of the plaster or by cutting a window over the painful point. If this is neglected a pressure sore will result.

The use of the Physiotherapy Department

The physiotherapist can play a very useful role in the treatment of fractures if the patient is referred early enough. She can encourage active movements of an injured limb and thereby eliminate stiffening oedema, and she is also trained to teach patients how to use crutches. Any patient sent home with crutches, i.e. almost all leg injuries, should be referred to the Physiotherapy Department to be shown how to use them (Fig. 2).

TREATMENT—Individual fractures commonly treated in Casualty

Clavicle

This is usually fractured by a fall on the point of the shoulder or the outstretched arm. Union is never a problem but malunion is almost invariable. Reduction can be attempted by bracing the shoulders back and held with a figure-of-eight bandage. This causes axillary discomfort, and the bandage rarely stays tight for more than 10 min. It is adequate to support the arm in a sling for comfort for a few days and encourage early movement of the shoulder. Sporting activities are forbidden for 6 weeks.

FIG. 2. Use the physiotherapist.

Scapula

The body of the scapula may be fractured by a direct injury, or the glenoid neck by a fall on the point of the shoulder. In neither case is reduction necessary or possible, excessive movement of the fracture being prevented by the surrounding muscles; the best treatment is a sling for comfort and early mobilization of the shoulder joint.

Neck of humerus

Adults fracture through the surgical neck; in children fracture-separation of the epiphysis occurs. These fractures follow a direct injury or a fall on the hand, usually with the arm abducted. The fracture is often impacted and may be missed until the bruise appears. Even with gross displacement spontaneous reduction will follow by supporting the wrist in a sling, the weight of the arm exerting traction. This traction also maintains reduction. The sling is retained for up to 6 weeks depending on the discomfort present. Gravity-assisted shoulder exercises (Fig. 3) are started immediately to prevent shoulder stiffness, but exercises with the giant wheel, beloved of old-fashioned physiotherapists, only achieve passive movement and are, therefore, forbidden.

If there is an associated nerve lesion or dislocation refer the patient to the Orthopaedic Department. The only other complication is shoulder stiffness which is prevented by activity.

FIG. 3. Gravity assisted exercises. Routine treatment for most shoulder injuries.

Greater tuberosity

This is due to a direct injury or to avulsion from resisted action of the supraspinatus tendon. The patient is unable to initiate abduction of the shoulder, and the arm should be supported in a sling for comfort. Early gravity exercises are needed to prevent long-standing stiffness of the shoulder.

Shaft of humerus

A direct injury causes a transverse fracture and an indirect injury a spiral fracture. Remember to examine the radial nerve before you start treatment. You need not reduce the fracture, gravity will do it for you. Accurate reduction is unnecessary, only correct general alignment. A wrist sling allows gravity to reduce the fracture, and with the muscles surrounding the humerus further splintage is not needed. Occasionally the arm feels very unstable and the patient feels more confident with a plaster U-slab from the axilla, under the flexed elbow and up the outer side of the arm to the point of the shoulder. This is held on with a crepe bandage. At 3 weeks the fracture is united and the patient may wear the sling outside his clothes instead of inside; at 6 weeks it is consolidated, the sling being discarded at this time. Gravity exercises of the shoulder and gentle active movements of the elbow are started early.

Supracondylar fracture of the humerus

This child's fracture is caused by a fall on the hand with the elbow flexed. The state of the radial pulse and the nerves must also be assessed at the

clinical examination, as these may be damaged by the sharp distal end of the proximal fragment.

If there is displacement the fracture must be reduced under general anaesthetic. The least displacement, that of backward tilt, can be corrected by flexion of the elbow, but where contact is lost between the bone ends the manipulation must be systematic. In the Apley method the opposite humeral shaft is grasped firmly and the shoulder externally rotated, the relationship of the epicondyle and forearm being noted. The affected humerus is then fully externally rotated, and after reduction of the lateral displacement of the distal fragment the epicondyles and forearm are placed in the correct rotation. If the rotation deformity is not corrected an ugly varus deformity follows. Traction is applied to the forearm with the elbow slightly flexed, and the lower end of the humerus is pulled onto the upper. The elbow is then flexed as far as it will go without obliterating the radial pulse. Provided the fracture has been reduced, this being confirmed by X-ray, and the elbow held flexed, the stretched triceps splints the fracture. Reduction is held with a collar and cuff sling in the flexed position; as swelling subsides the collar and cuff is tightened daily maintaining full flexion but still ensuring the pulse is palpable. The arm is kept inside the vest and the collar and cuff never removed (Fig. 4). The use of plaster is an admission of failure of reduction. Repeated plaster change as flexion is increased is liable to cause displacement of the fracture. Discomfort due to sweating in the axilla and elbow flexure is prevented by blowing powder into these sites.

FIG. 4. Collar and cuff. Three weeks inside the clothes and 3 weeks outside is routine treatment for most elbow injuries.

At 3 weeks the patient is allowed to have the collar and cuff outside the clothes, only removing it for washing, dressing and eating. At all other times the collar and cuff is maintained in full flexion. The child with a fractured elbow regains full movement unless a physiotherapist or anxious parent tries to force the pace.

Failure to correct the rotation deformity will cause malunion. The serious complications are myositis ossificans, which is increased by exercise, and the dreaded complication of Volkmann's ischaemia, of which excessive pain is the cardinal symptom. A patient with any of these complications should be referred to the Orthopaedic Department forthwith.

T- or Y-shaped fracture of the humerus

This is due to a fall on the point of the elbow. The olecranon is driven as a wedge into the lower humerus and the condyles are split off. Closed reduction cannot be accurate and if the elbow is put in plaster permanent stiffness is inevitable. Operative reduction is no less unsuccessful. It is best to make the patient reduce his own fracture assisted by gravity. A collar and cuff is applied, and early active elbow movement encouraged. By this means the lower humerus is moulded to a near normal shape by the bones with which it has to articulate and a surprising range of movement results.

Medial epicondyle

This is due to a valgus strain in children, and may be associated with a dislocated elbow. The medial epicondyle is pulled off and if, as occasionally happens, it is trapped in the joint or there are ulnar nerve symptoms, operation is needed.

When the epicondyle lies outside the joint and there is no evidence of an ulnar nerve lesion all that is required is a sling until the arm is comfortable. The medial epicondyle is only for muscle attachment, and even with displacement will unite by fibrous tissue which will give adequate origin for the wrist flexor muscles.

Lateral condyle

This is another child's injury, caused by a valgus strain of the elbow pushing off the lateral condyle. It is very unstable, usually needs operation, and is not really in the province of the casualty officer.

Capitellum

This is the adult equivalent of the fractured lateral condyle. The front half of the capitellum and part of the trochlea shear off vertically and the fragment comes to lie in front of the lower

humerus. Manipulative reduction may be achieved by extending the elbow under general anaesthetic, and while putting a varus strain on the elbow the fragment is replaced by thumb pressure. If this succeeds flexing the elbow fully holds reduction, a collar and cuff maintaining the flexed position. If closed reduction fails open reduction is necessary.

Radial head

A fall on the outstretched hand putting a valgus strain on the elbow drives the head of the radius onto the capitellum. The radial head may sustain: (1) a chisel fracture, which is simply a vertical crack, (2) a marginal fracture where a segment is displaced, usually downwards, or (3) a comminuted fracture.

A patient with any of these fractures has a haemarthrosis of the elbow which will require a collar and cuff to rest it. Failure to do this leads to stiffness. With a comminuted fracture excision of the head may be necessary, and the decision should be made by the orthopaedic surgeon. The collar and cuff sling is maintained with the elbow fully flexed, as it is flexion which is difficult to regain after an elbow injury. After 3 weeks the elbow is allowed out of the sling for meals, washing and dressing, and at 6 weeks gentle use will allow extension to return.

Neck of radius

This is the equivalent injury in a child, the head of radius being tilted distally, forwards and laterally. Rotation of the forearm is limited if the deformity is left, and reduction can be achieved by pressing proximally, medially and backwards on the head. If the forearm is also rotated the orbicular ligament may assist reduction. Reduction is held by a collar and cuff for 6 weeks, 3 weeks inside the clothes and 3 weeks outside. If closed reduction fails open reduction must be done unless the deformity is slight.

Olecranon

This is due to a fall direct onto the elbow or a fall on the hand with the elbow flexed, the olecranon being fractured by muscle pull. With a direct injury, the triceps expansion may be intact in spite of the stellate fracture. Such a fracture only needs treatment of the soft tissues with rest in a sling. If there is separation of the fragments and the triceps does not act on the forearm operation is necessary. No patient is too old for operation; the elderly patient may need to use crutches which require good triceps action.

Fractures of the radial and ulnar shafts

A fracture of either the radius or ulna, or of both bones together, may be caused by a direct

injury or a rotational force. Beware of the undisplaced fracture of one bone; almost certainly there is dislocation of one of the radio-ulnar joints which requires expert treatment. All adult forearm fractures should be referred to the Orthopaedic Department as perfection of reduction is essential, and is usually by open treatment.

In children, slight sideways shift or angulation will eventually grow straight, so perfect reduction is not essential. Many of these fractures are greenstick in type with angulation deformity only, and reduction under anaesthetic is achieved by bending the bones back to the straight position. Frequently a complete fracture of one of the bones is produced; this is unimportant so long as contact is kept between the bone ends. If the fracture is complete and displaced a careful manipulation aimed at getting apposition of the bone ends is usually successful. Rotation of the forearm is important. If the fracture is in the upper third the forearm should be supinated; in the middle third the forearm is in the position of mid-rotation, and in the lower third the forearm is fully pronated. The reduced fracture is held in a split plaster from above the elbow to the metacarpal necks for 8 weeks. Although according to the table a child only needs 6 weeks for consolidation of an upper limb fracture we know that as soon as a child is released from plaster he will do all the things he could not do in plaster, and is then liable to refracture. We are not worried by joint stiffness in a child and an extra 2 weeks in plaster safeguards the child from his own folly.

Colles' fracture

This is a transverse fracture of the lower end of the radius 1 in. from the joint line and not involving the joint. The fragment is displaced and tilted backwards, displaced and tilted radially, the fracture is usually impacted and the ulnar styloid fractured. It is caused by a supination force, and reduced under general anaesthetic by pronating the hand on the forearm, followed by flexing and ulnar-deviating the wrist. The fracture is held in this position with a plaster back-splint which extends from just below the elbow to the metacarpal necks. The back-slab is made so that it almost encircles the limb, leaving a gap down the front of the forearm. It is held on with a crepe bandage which will give with any swelling, and not with a wet cotton bandage which is guaranteed to shrink and may cause ischaemia. Any rings should be removed before or during the anaesthetic. The patient should not go home until able to raise the arm and touch the opposite ear. This demonstrates to her that although the limb is injured it can be used. Shoulder, elbow and finger

movements are encouraged, and a sling should only be used for 24 hr. The day after manipulation the patient is reviewed and movements again encouraged. One week later a check X-ray is taken; if the fracture has slipped to an unacceptable position manipulation under anaesthetic is repeated. The plaster is removed after 6 weeks, an X-ray taken to confirm union and a crepe bandage applied. This is kept on for a further 2 weeks except for washing, and the patient told to use the hand for light duties. If there is any doubt about shoulder or finger movements refer the patient to a physiotherapist.

The commonest complications of Colles' fracture are slight malunion, which is almost invariable but not significant, shoulder or finger stiffness which should be prevented by early movement, and persistent pain on the ulnar side of the wrist due to the fractured ulnar styloid; this usually settles as the wrist movement returns.

Other lower radial fractures

Fracture separation of the radial epiphysis is the child's version of a Colles' fracture and is treated in the same way. Do not miss the slight displacement which may occur in these fractures and which can cause quite marked limitation of wrist movement if not reduced.

A comminuted fracture may occur, and as it involves the joint the plaster is removed at about 4 weeks to try to get the joint moving a bit earlier than in a Colles' fracture.

The radial styloid may fracture, and again this involves the joint surface. There is usually little displacement, and a crepe bandage is all that is required for comfort, joint movement being encouraged from the start. Smith's fracture is an oblique fracture of the lower radius so that the front of the joint surface is sheared off and the hand displaced forwards. It is usually very unstable and is treated by internal fixation.

Scaphoid

The scaphoid fractures by a fall on the hand, and causes pain on the radial side of the wrist. pain on forced dorsiflexion and weakness of grip. There is tenderness in the anatomical snuff box. If these signs are present treat the wrist as a scaphoid fracture regardless of the X-ray which may not reveal the fracture until 3 weeks later. Plaster is applied from below the elbow to the metacarpal necks, and including the proximal phalanx of the thumb. The wrist is dorsiflexed, the thumb opposed, and the plaster well moulded in the palm but allowing full metacarpo-phalangeal flexion of the fingers. If the original X-ray did not reveal the fracture the plaster is removed at 2

weeks and the wrist X-rayed. Again, if the three signs are present but the X-ray does not show a fracture replace the plaster and re-X-ray at 3 weeks. If no fracture is demonstrable the wrist is freed. If there is a fracture the plaster is kept on for a total time of 6 weeks and the wrist examined. There should be no tenderness in the snuff-box or weakness of grip, but there may be pain on dorsiflexion because the wrist is stiffish. X-ray at this stage rarely shows union, but if there is no tenderness or weakness it is reasonable to leave off the plaster and apply a crepe bandage. The patient is advised not to do heavy work and is re-examined 3 weeks later. If there are then no signs of a fracture the patient is discharged. If at either of these examinations there are still the clinical signs of fracture the plaster is reapplied and the patient referred to the orthopaedic surgeon.

Triquetral

When there is tenderness on the dorsum of the wrist and an X-ray shows a flake of bone off the back of the carpus this is usually called a chip fracture of the triquetrum. It does not require reduction or splintage, but the patient may feel more comfortable in a crepe bandage for about 2 weeks.

Metacarpals

The base of the first metacarpal may fracture into the joint as a Bennett's fracture. This may be treated by abducting the thumb and holding it in plaster, or by operation and screwing or wiring the fragments. A quicker and equally good result may be obtained by disregarding the fracture and treating the soft tissues by a crepe bandage and early active movement. Despite malunion the function of the thumb is as near normal as with any other method of treatment. The metacarpal shafts may fracture, but are supported by the surrounding muscles and neighbouring metacarpals; a crepe bandage and early movement gives the best functional result. Some malunion is inevitable but does not affect the function of the hand. The metacarpal necks may fracture and angulate forwards. The orthodox treatment is to reduce the fracture and hold it by flexing the finger to 90° at the metacarpo-phalangeal joint. This frequently causes permanent or at least long-standing joint stiffness. If you look at any professional boxer's hands you will find malunited metacarpal neck fractures with excellent function. Go for early function and disregard the fracture. Whatever happens do not use plaster.

Phalanges

The phalanges may fracture transversely or obliquely. Angulation may occur with the trans-

verse ones, but there is usually little displacement of the spiral fractures other than some overlap. With an angulated fracture it is reasonable to rest the finger on a splint in some flexion for 2 weeks, followed by splinting it to the neighbouring finger with a garter on the proximal and intermediate phalanges for a further 2 weeks. This will encourage joint movement. All other phalangeal fractures are treated with the garters from the start, and only need 3 weeks' splintage.

The trunk

The only trunk fracture which can be considered a casualty fracture is a stable crush-fracture of a thoracic or lumbar vertebral body. Such an injury may be caused by a fall or a flexion injury. The criteria for stability are clinical and radiological: (1) no symptoms or signs of nerve involvement, (2) an intact interspinous ligament demonstrated by absence of widening of the intra-spinous space on the lateral X-ray, (3) no fracture of the vertebral facets, (4) no lateral shift of either the spinous process or vertebral body, and (5) the anterior height of the vertebral body is not less than one-third of the posterior height. If all these criteria are satisfied without any doubt the fracture is disregarded and the patient treated by heat and spinal extension exercises to eliminate the haematoma in the muscles. Although it is much better to admit these patients for a few days to get them mobilized, if the hospital bed situation is very acute they can be treated as out-patients.

Fractured patella

A direct injury may fracture the patella in a stellate manner without disruption of the quadriceps expansion. If the patient can lift his leg straight the extensor mechanism is intact. The fracture needs neither reducing nor holding, but the haemarthrosis of the knee is treated by aspiration if tense, and early active exercises. A plaster back splint may be needed to give support to the knee for about 10–14 days. Do not use this method of treatment unless you are sure there is no separation of the fracture.

Fractures of the tibial shaft

All tibial fractures, with or without fibular fractures, are best treated by hospitalization as they swell a lot, but in certain cases out-patient treatment may be used initially if the bed state demands it. A spiral fracture of the tibia in a child may require reduction by rotation, and is held in a plaster from above the knee to the metatarsal necks. As the leg will swell the plaster must be padded and split, and crutches supplied.

An undisplaced transverse fracture in an adult can be treated in the same way. Early reference to the fracture clinic is essential, as the complications of tibial fractures are many.

Fractures of the fibula shaft

A direct injury to the fibular shaft causes a transverse or comminuted fracture. Make sure there is no associated ankle injury. The fracture requires no reduction or splintage, but the soft tissues are treated by a crepe bandage until the swelling subsides and active movements, with elevation when not walking.

Ankle fractures

These are fractures of the mortice and displacements of the talus. There are only two ankle fractures which can be classified as Casualty fractures, the external rotation type and the abduction type, and these are only Casualty fractures if the medial malleolus is intact. An external rotation injury causes a spiral fracture of the lower end of the fibula, best seen on the lateral X-ray. An abduction injury causes a transverse fracture of the fibula 2–3 in. from the tip of the lateral malleolus. Except for the undisplaced external-rotation type of injury these fractures require reduction, and this is carried out by reversing the causal force which can be ascertained from the fracture pattern on X-ray. The reduction is done under a full general anaesthetic with relaxation, and less than perfect is unacceptable. The external rotation fracture is reduced by internally rotating the foot, the abduction fracture by adducting the foot. The reduction is held by a split below-knee plaster from just below the knee to the necks of the metatarsals. It is wrong to splint the toes. The ankle is held at a right angle with the foot neither varus nor valgus, any deviation from this position causing stiffness and necessitating prolonged physiotherapy. When the swelling has subsided the plaster is changed, usually under general anaesthetic with X-ray control. The plaster is retained for 6 weeks for an external rotation injury and twelve for the abduction injury.

The soft tissues are treated by elevating the leg when not actually walking, and exercising the toes and knee. When the definitive plaster has been applied a plaster overboot with a rockered sole is used and the patient is taught to walk normally (Fig. 5). By using the toes when walking he will 'milk away' the oedema. After removal of the plaster a crepe bandage is used, again from toes to below knee, until there is no swelling.

FIG. 5. A leg plaster prevents ankle movement. The rockered overboot replaces this movement and allows a normal heel-toe gait.

Fracture-separation of the lower tibial epiphysis is not really an ankle fracture but is treated in a similar way. The fracture is reduced by reversing the causal force of the injury, as shown by the displacement on X-ray, and held in a plaster for 6 weeks.

Fractured calcaneum

A fall on the heel may crush the calcaneum. This bone is essentially an egg-shell containing stale bread crumbs, and even if reduction is possible, however long it is held it will redisplace on weight bearing. The functional treatment is to disregard the fracture and treat the gross swelling by elevation, firm elastic bandaging and exercises. The maximum displacement takes place at the time of impact, so ordinary weight bearing will not displace it further. Weight bearing is allowed as soon as the patient feels able to put his foot on the ground. Permanent sub-talar stiffness may prevent the patient returning to his usual occupation in the building or window-cleaning trades.

Metatarsal fractures

These are caused by dropping a weight on the foot, or the fifth metatarsal base may be pulled off by an inversion injury. Like the metacarpals, these fractures are splinted by their neighbours. Malunion is invariable, but so is good function unless the fractures are splinted externally. The fractures are not treated but the soft tissues must be vigorously treated by firm bandaging, elevation and active exercises. Crutches are required initially as the foot will be painful for weight bearing, but they should be discarded within a few days.

Toe fractures

These painful injuries are notable for their swelling; only movement and elevation can eliminate this. Splintage in a firm shoe and normal walking will produce the same malunion as plaster or collodion splints, without the stiffness.

Follow up

All patients with fractures treated in Casualty and sent home must be seen the following day. At this review the patient is checked for pain, swelling and function. Activity should be encouraged. A decision should now be made as to the follow up. Most fractures will be referred to a fracture clinic, but if it is decided to continue treatment in the Casualty Department the frequency of attendance is determined by the type of fracture.

The earliest possible return to work, even if only light work, must be the aim of treatment. If the fracture has rendered the patient incapable of his own work for a long time the Disabled Register may help. Do not let a patient stay away from work unnecessarily because of an impending insurance claim, and if the patient in your opinion can reasonably work but will not for this reason write this in your notes.

With any Casualty fracture, if in doubt call for more senior help.

For further reading

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