

their entire zeal and enthusiasm. Under good hospital conditions he seems to become satisfied with his changed life and remarkably well reconciles himself to his

personal problems, but the unwanted sympathetic attitude of near relations usually make an otherwise cheerful patient miserable.

Initial Management of Spinal Injuries

by

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Injuries of the Spine are very important because of the prolonged disability which follows indifferent or belated treatment, and because of the danger of likely injury to the spinal cord. The injuries may be :

1. Soft tissue injuries.
2. Fracture of spinous process and transverse process.
3. Fracture of neural arch.
4. Fracture of body of vertebræ, with or without paraplegia.

The first three are caused by sudden contraction of muscles against resistance or by rotational strain, which produce pain, tenderness, rigidity at the site of injury, and even loss of function. These patients are treated in our Department by a Plaster of Paris spinal jacket for four weeks which gives rest to the soft tissues ; the patient can walk after a week. These are classified as safe or stable fractures.

Fractures of bodies of vertebræ are serious because of the danger of damage to the spinal cord, nevertheless the great majority of fractures are quite safe fractures and give excellent results. The fracture of body of vertebræ may be produced either by a fall from a height, when the patient lands on his feet or buttocks causing a vertical compression of the body. This is the most common type of injury and the fracture thus caused is a safe or stable type of fracture. The second variety of fracture is produced when the patient is bending and suddenly some heavy object falls on his back (it happens to miners). This produces a

severe comminuted type of fracture and may even damage the spinal cord. These are unsafe or unstable types of fracture.

The third type of fracture of spine is produced by a sudden impact with an object moving at high speed such as a motor vehicle ; the impact at the upper part of back from behind not only flexes the spine but also drives the upper part forward thus producing fracture, dislocation and even crushing of the cord. This is a serious injury and produces an unsafe or unstable type of fracture and, perhaps, paraplegia. All these fractures produce pain, deformity, tenderness, rigidity and loss of function of the spine. The diagnosis and the type of fracture is confirmed by X-ray.

Every patient with a spinal injury who gives a history of trauma and pain in the spine, should be diagnosed as a case of "fracture of spine" unless and until proved otherwise radiologically, and should be handled as a case of fracture of the spine. Initial management of every case of spinal injury should be the same ; any carelessness may damage the spinal cord.

Initial Management of Spinal Injury

In all discussions on first-aid in spinal injuries, the need for standardised, simple instructions is of paramount importance, and we in this Department carry out the following instructions :

1. The patient who is suspected of a spinal fracture following an accident, is warned not to move.

2. At least four persons are

necessary to move the patient with a spinal injury, from the place of accident. Every care is taken that all movements of the first-aid party are carried out slowly and with greatest care, so as not to bend the patient backward or forward. Meticulous care should be taken that all movements be carried out simultaneously by each member of the team so that the patient is turned, lifted or shifted, in one piece. This principle of moving the patient in one piece should be religiously followed whenever the patient is moved or transported anywhere e.g., to X-Ray Room or Operation Theatre.

2. On no account must the patient be carried in the prone position. In these fractures there may be involvement of the respiratory apparatus, with fractured ribs or collapse of one lung, or fractures of pelvis when the prone position is decidedly harmful. All spinal injuries can be safely and comfortably transported in a supine position provided the principle of moving or lifting the patient in one piece is strictly adhered to. The only time a patient, who has a suspected spinal injury, is transported in any other than supine position, is when he is unconscious, and inspiration of saliva into lungs must be avoided.

4. Patients with cervical injuries should be transported with slight traction on the head by the person who is holding the head.

5. The patient with a spinal injury should be transported on a rigid stretcher or on a hard board. Hard objects should be removed from the patient's pocket at once. The areas of prominent bones should be protected from pressure by placing pillows or blankets underneath. The feet and legs should be bound together and the ankles should be tied during transportation.

By trial and error we have been able to design in our department, a very efficient wooden first-aid splint which extends from the axilla to the knees, flexible in the middle for moulding at the hips, and eight straps, four anterior and four posterior. The patient is well padded, the splint applied and straps are tied. This is a handy splint, quite

simple in use and very comfortable to the patient. The most important thing in this splint is that it observes the principles of shifting, lifting or turning of the patient in one piece. Another great advantage of the splint is that the patient can be turned on his side and lie on his side for any length of time without any danger, as he will lie in one piece from the axilla to the knees. The nurse can attend to his toilet, skin, back and chest with ease.

In no circumstances should hot water bottles or electric cradles be used until the patient has been examined by a surgeon. There are endless instances where inadvertent use of hot bottles in cases of spinal injuries have resulted in burns, which later on led to large bed sores. Morphine should not be given unless ordered by a doctor; its administration in cervical lesion and in lesion with lung collapse may prove harmful, if not disastrous. If the patient is very shocked, sips of glucose and brandy should be given. Sips of cold water in hot weather and hot coffee in winter may be given.

No catheter should be passed to relieve retention of urine unless instructed by the surgeon. Retention of urine for even 24 hours does not do any harm. Once a catheter is passed without proper aseptic technique, infection will most probably follow.

Last, but no less important, is the reassurance of the patient. When the patient learns that he has a broken spine, he experiences a severe shock and believes that he is crippled for ever, though statistics show that more than the 90% of spinal injuries are simple, and excellent results are obtained. The nurse should reassure the patient and encourage a hopeful spirit; this will help to combat his psychological trauma.

Treatment of spinal injuries in this Department

1. For soft tissue injuries and for fractures of transverse process and spinous process, a Plaster of Paris spinal jacket is applied for about four weeks. The patient is allowed to move after one week, and carries on spinal exercises

but does not do any heavy work for two months.

2. For safe or stable fracture of body of vertebrae, a Plaster of Paris spinal jacket is applied in extension for ten weeks. The patient is ambulatory after one week. He may go back to active duty after about sixteen weeks.

3. Unstable fracture of the body of vertebrae without fracture or dislocation :

Spinal jacket in hyper-extension is applied for sixteen weeks. No hard labour is allowed for six months.

4. Unstable fracture of body of vertebrae with dislocation ; Operative reduction is performed and a post-operative spinal jacket is worn for about three months.

5. Management of spinal fracture with paraplegia will be discussed in detail by Sister Shankar.

Nursing Care of Spinal Injuries with Paraplegia

by

Sister Shankar and Staff-Nurse Nickle

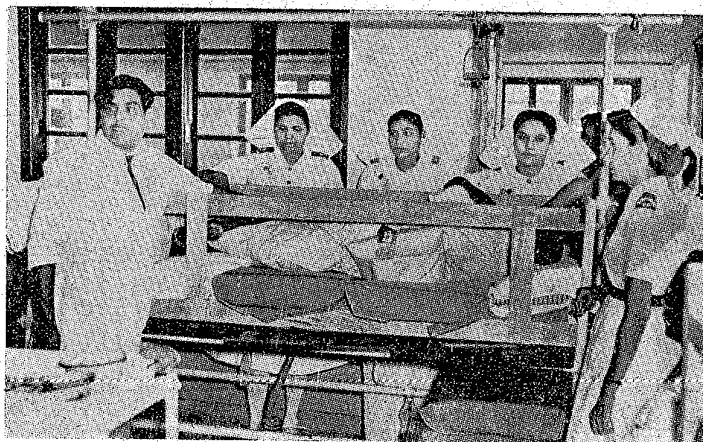
The nursing of paraplegic patients need the highest skill, ingenuity and dexterity on the part of a nurse. The nurse should be full of zeal, enthusiasm with a missionary spirit, and high courage. Hers is the very heavy responsibility of giving to the patient, on whom has befallen a most severe calamity, the courage to endure and live.

The routine procedure in our Department of Orthopedic Surgery in dealing with traumatic paraplegia in the initial stage following spinal injury is :

The patient is placed in supine position on sorbo-packs or air pillows, with additional soft pillows underneath the fracture to produce hyper-extension of the spine in order to restore, as far as possible, the normal curvature of his spine. A bolster is kept at the foot end of the bed to keep both feet in a position of dorsiflexion. From the basic supine position, the patient is turned, first to one side

to about 45 degrees, and back to supine position ; then to the other side. This changing of position is done very strictly every two hours *day and night*. The turning is carried out by 3 attendants working under the guidance of a fully trained nurse. Every precaution is taken in carrying out all the movements simultaneously, and of turning the patient in one piece ; we emphasise the importance of turning the patient in one piece during changing of position as essential to avoid further injury.

We have found that nursing of these



Demonstrating use of Sorbo packs and pillows