

a c c u s t o m e d gradually to the foreign body. After four days the patient is put on a continuous urethral drainage by an indwelling Folley's catheter, size 16F with 5 c.c. volume. This indwelling catheter is changed twice in the first month, and then weekly in order to free the urethra from deposits. The bladder should be then washed out daily with boric lotion 2% or normal saline or any other weak antiseptic lotion. Before the wash-out, the stagnating residual urine should be withdrawn by a Pulitzer bag or Asepto syringe. The bladder should then be washed out and filled with lotion and left for two minutes; this helps to retain and develop the tone of the bladder musculature. If infection supervenes or the colour of urine is dirty, the patient is put on tidal drainage of the bladder for two to three days to clear the urine. The patient is kept under an umbrella of small dosages of sulphatriad.

Once the automatic function of the bladder has returned, the indwelling catheter is withdrawn and intermittent catheterisation is instituted until the detrusor action is powerful enough to leave a small amount of residual urine (less than 25%). If the patient develops an uncontrollable cystitis, or in those cases which come to us with cystitis, suprapubic cystostomy is performed. These patients are encouraged to take a

lot of fluids to avoid heavy phosphates and encrustation.

Care of Bowels

Constipation in paraplegics should be avoided at all costs. These patients, if constipated, are given a plain water enema on alternate days; the usual soap and water enema irritates the bowel mucosa and may cause uncontrollable diarrhoea. When the enema is given the patient is turned to one side. About a pint of water is given—the can kept at the height of one foot during procedure. The equipment should be sterilized to avoid infecting the patient. If the patient develops diarrhoea, the stool is examined. The diarrhoea is controlled by starch and opium enema, and by a bismuth kaolin mixture given orally; and if necessary, sulphaguenidine.

Nutrition

Constant attention is needed to combat malnutrition which is often a problem in the early stages of paraplegia. It is essential to maintain a good state of nutrition throughout. These patients should be kept on a high protein—high vitamin diet. Due to vasomotor disturbances these patients have bouts of sweating which result in loss of body fluid and mineral salts. A very careful watch is kept on the water and electrolyte balance, and glucose and saline transfusions given intravenously if required.

Surgery and Nursing Care

by

Sister Bela Singh

(Theatre Sister)

All orthopedic surgery demands meticulous care and the strict supervision of the operating theatre set-up, and provision for efficient post-operative care are vital to success. The patient with spinal injuries demanding surgical intervention, calls for top level care at every turn.

Selection of cases

More than 90% of cases of spinal injuries do not require any surgical interference. A well fitting plaster immobilization is usually sufficient in simple or stable fractures of the spine or soft tissue injuries.

Fractures of the spine with fracture-dislocation, require operative reduction and post-operative plaster immobilization.

Fractures of the spine with Paraplegia

Immediate internal fixation of fractures of the spine with paraplegia using plates and bolts have been recommended by various surgeons; this gives stability to the spine so as to ensure safe two-hourly turning of the patient. This technique is not used in our Department as it has been found to increase shock to a patient already shocked; further, it weakens the spine, and the powerful muscles of the back, which act as a natural splint for the spine, are damaged.

Immediate Laminectomy

Definition: Laminectomy consists in the removal of the lamina of several adjacent vertebrae to allow access to the spinal canal.

It is indicated in the following conditions:

1. Compound fracture with foreign bodies in the spinal column e.g., bullet.
2. Gradually increasing paraplegia due to hæmatomyelia.
3. Complete manometric block.

No immediate laminectomy is done in our Theatre.

Late Laminectomy

Indications:

1. When gradually increasing recovery of the paraplegia stops.
2. Increasing of paraplegia.
3. Signs of compression over the cord.

Many such cases are operated on in our theatre with some very gratifying results.

Reconstructive and Corrective Surgery

These operations are very commonly done here.

Tenotomy to correct the contracture deformities usually at the knee, ankle and hip.

The most common reconstructive

surgery in our theatre is done on the feet and ankle for deformed and flat feet. Triple arthrodesis, pantoloid arthrodesis is performed to give a firm and stable foot after which the patient walks with firm stable tread, while the gait is considerably improved.

Suprapubic Cystostomy is done for uncontrollable cystitis.

Pre-operative Care

The surgeon's pre-operative instructions will usually include the following: (a) Diet—increased fluids and increased carbohydrates; (b) attention to bowels—enemata usually; (c) pre-operative sedation; (d) mapping out of skin area for preparation.

Our skin preparation includes thorough soap and water cleansing, shaving, applications of ether to remove grease particles followed by rectified spirit; when the area is dry it is painted with mercurochrome 2%, and covered with sterile towels.

About 7 days before the operation a well fitting posterior plaster shell of the patient is prepared. A wooden frame is prepared for this shell. In the post-operative period the patient is nursed in this plaster shell and wooden frame. A thorough clinical examination of the patient is made and a chart is kept to record loss of motor power, sensation, reflexes, and the act of micturition and defæcation. After a laminectomy the spine is temporarily weakened and rigid immobilization is essential. Following are the advantages of the 'plaster bed on wooden frame':—

1. Gives adequate immobilization.
2. Nursing and toilet of the patient is simplified.
3. Bed pan and urinal can be placed under the plaster bed.
4. Patient does not lie in a wet and soiled bed.
5. He is very comfortable in this bed.

Transportation of the patient to the theatre

Every care is taken during transporta-

tion of the patient. He is lifted in such a way that all parts of the body are moved simultaneously by each member of the team so that he is lifted in one piece, to avoid any damage to the spinal cord.

Anæsthesia

Most surgeons prefer inhalational anæsthesia. Our patients are usually induced with Sodium Pentothal and maintained on Nitrous Oxide and Oxygen and, if necessary, with the addition of Ether.

Position during operation

The patient is put into the prone position supported with pillows so as not to hamper respiratory movements—the head is turned to one side. If the operation field is the cervical region, the patient's head is so arranged that his chin is resting on the table; adequate support with sand bags or pillows is arranged.

Special care is taken to ensure a clear airway and to prevent the inspiration of saliva and mucus into the lungs. Post-anæsthesia lung complications are common, and measures must be taken to avoid them.

Post-operative Care

Post-operative nursing care of these patients is a truly major nursing problem.

Our patients are returned to the ward in the plaster bed mentioned above.

Special watch is kept for the following:

1. Shock.
2. Retention of Urine.
3. Distension of abdomen.
4. Pain.

Operations on the spinal column are followed by shock of a considerable degree and the patient needs close attention. If the patient does not respond to the usual anti-shock treatment within a reasonable time, no time should be lost in giving them a blood transfusion.

Retention of urine is common in our

patients and if they do not pass urine in 8 hours, 500 c.c. of glucose/saline 5% in 200 c.c. of glucose 25% with vitamin C is given intravenously.

Heat is applied to the supra-pubic region and a simple water enema is given. Only if there is no response to these measures, is catheterisation resorted to; and intermittent catheterization is carried out under a strict aseptic technique.

Distension of the abdomen is sometimes a complication and this is relieved by continuous aspiration of the stomach using a Ryle's tube. Fluids are supplied through the intravenous route. It is important that a correct record be kept of the fluid intake and out-put so that the loss of electrolytes may be noted and reported to the surgeon; after calculation by the surgeon, the loss is made good by intravenous transfusion of fluids. This regime is maintained until the patient passes flatus and distention subsides.

Pain is relieved by giving Pethidine or Dial by injection.

Diet—Fluids for the first 24 hours moving to a solid diet by the third day, if there is no distension or other allied complications.

The usual nursing as given to all surgical patients, is carried out.

A very careful daily examination is made by the surgeon to note the progress of the patient.

These patients are usually kept in hospital for about eight weeks.

Special Instruments for Laminectomy

Instruments for general surgery plus:

2 periosteal elevators.

1 pair each of straight large, medium and small rongeurs.

1 pair each of curved large, medium and small rongeurs.

1 pair each of double-action curved and straight rongeurs.

1 pair each of large, medium and small bone-cutting forceps.

Each large and medium laminectomy self-retaining retractors.

Hudson's laminectomy sheers.

Dural set of instruments—forceps, scissors

etc.

Spinal curets.

Suction apparatus.

Bone wax.

Physiotherapy and Rehabilitation

by

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Lecturer in Department of Orthopaedic Surgery

I wish to draw your attention to the importance of Physiotherapy and Rehabilitation in the treatment of spinal injuries with paraplegia. We start the treatment for these patients as early as possible. Special attention is given to maintain the correct position of the limbs to avoid the development of contractures and bed sores. For this purpose the Department of Orthopaedic Surgery in this institution provides a special type of bed—the “hanging” bed. The physical treatment in early stages includes massage and passive movements of the joints to maintain their normal mobility. For effective treatment every patient needs a fairly large amount of time as the exercises should be given several times in a day. We are not able to give this treatment more than once daily to a patient as the number of our paraplegic patients remain high and there is a shortage of staff. However the nurses, in spite of being heavily over worked, take a keen interest in this work and their co-operation in the rehabilitation therapy has been invaluable.

I should mention that besides administered treatment, the patients are instructed and encouraged to do various types of exercises themselves, these are done both while in bed and, later on, when they get up. Exercises with weights and pulleys, and different appliances have proved of great value in our series of cases. As the patient improves, “balance” exercises in sitting posture, and later, in standing, are taught. Gradually we encourage the patient to walk with crutches and, later, independently. During this treatment period, every effort is

made to develop and maintain a good relationship between the patient and nursing staff. The problem can become a little difficult with irritable and un-co-operative patients.

Occupational Therapy deserves mention because of its contribution in promoting mental and physical activity.

While our patients are being given physical treatments we also keep them engaged in such occupations as toy making, weaving, knitting etc. We have found it to be extremely beneficial in stimulating a cheerful and happy frame of mind. They soon lose their ideas of being useless members of society, and thank us for helping them toward new and productive occupations.

We have now established well equipped Orthopedic Rehabilitation Unit in our Department—the only of its kind in Uttar Pradesh. We are also training our nurses in this specialized branch of work.

We are indebted to our Chief of Department, Dr. Sinha, for his encouragement and keen interest in the development of this Unit.

We have been able to achieve a good deal for our patients, and derive a lot of personal satisfaction in seeing numbers of them return to a life of useful and respected citizenship.

Continued by Staff Nurse D. Rodricks—

I should like to support what Dr. Srivastava has said as well as to mention certain specific aspects of treatment.