New Appliances

Domiciliary Gallows Traction for Femoral Shaft Fractures in Young Children

British Medical Journal, 1972, 3, 108

Mr. H. D. W. POWELL, consultant orthopaedic surgeon, High Wycombe and Amersham Hospital Group, writes: Gallows traction for the treatment of femoral shaft fractures in young children, first credited to Bryant in 1876,¹ is a valuable method of managing simple shaft fractures within a limited age range. It is particularly applicable when the shaft fracture is oblique and the patient is often more easily supervised by nursing staff of a children's ward than is the child whose fracture is immobilized on a Thomas splint.

In Britain these injuries are usually treated in a children's surgical ward, a cot or small bed being occupied for four to six weeks. There are many hospitals where this raises no real problem, but in this area it does. In 1964 Partridge² described his experiences in Eastern Nigeria with home management for these injuries, giving the credit for this idea to the teaching hospital in Ibadan.

Our particular problem is one of a hospital service trying to cope with a community whose growth rate is far in excess of the national average. During the years 1951-71 the population of Buckinghamshire increased by 51%, and a high proportion of those who have moved into the area are young married couples with young children.

In 1967 the first portable gallows traction apparatus was made at High Wycombe by our then registrar Mr. A. Zahir. This is constructed largely of Dexion, as used in shelving, and fixed on a flat wooden base mounted on castors (see Photograph).

Skin traction is applied in exactly the same way as when used on a child detained in hospital. Careful instructions are

given to the mother, and the child, fixed on the frame, is then taken home by ambulance after a check x-ray film has been done. Regular outpatient attendances are then organized with ambulance transport for checking the traction and for follow-up x-ray films. After making our first portable frame we soon realized that we needed more, and before long two were frequently in use. We increased the number to four and then in the autumn of 1971 we were inundated and had no fewer than seven young children on these frames at the same time, all being looked after at home. More recent models have been made entirely in wood and one Australian father spent half the night constructing another frame at home at a moment when all available domiciliary frames were in use.

At the request of the local ambulance drivers two small modifications have been made. The total height is being reduced by a few inches to make it easier to carry the frame upstairs without impinging on the ceiling of the floor above and collapsible side handles are being added for easier carrying.

Comment

We have been extremely satisfied with this method of management during the past five years and have not had any significant complications as a result of not keeping a child under constant observation in hospital. Complications with gallows traction have been reported³ and it may well be argued that home treatment is potentially unwise or even dangerous because of the lack of constant supervision. The close co-operation between hospital and general practitioners in this area is a major safeguard in problems arising in home management. The advantages to the family are considerable, avoiding a period in hospital for the child and hospital visiting for the family. The cost to the State is far less and the portable frames are a capital asset capable of being used repeatedly.

The new hospital at High Wycombe was opened at the end of 1966, and the modern ward design makes it virtually impossible to put up extra beds or even cots. Eventually we were forced by pressure on bed occupancy to try this domiciliary scheme. After having used it for five years we are in no doubt that it has very considerable advantages and few if any significant disadvantages. In this area it works well and we shall continue to use it when necessary for young children with these injuries.

This scheme would not be possible without co-operation from the Buckinghamshire ambulance service, which we most gratefully acknowledge.

References

- ¹ Bryant, T., *Practice of Surgery*. London, Churchill, 1876.
- ² Partridge, A. B., *Practitioner*, 1964, 193, 651.
- ³ Fisher, T. L., *Canadian Medical Association Journal*, 1966, 95, 1090.

The domiciliary frame in use