ORTHOPAEDIC MANAGEMENT IN CHILDHOOD

EDITED BY PETER F WILLIAMS

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Orthopaedic Management in Childhood

BY THE STAFF OF THE DEPARTMENT OF
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ROYAL CHILDREN'S HOSPITAL, MELBOURNE
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Preface

The practice of orthopaedic surgery can be learnt in a variety of ways but there is no substitute for personal experience. Even though it is said that experience is not a transferrable commodity, it is nevertheless possible for those who have it to make it available to those who have not. If this practice were a science it would only be necessary to consult a manual to find out how to fix any given problem. Unfortunately for the student, orthopaedic practice conforms more to an art than a science and logical decisions are only possible if the facts are considered in the light of the patient with his infinite variety of hopes, fears and expectations.

There are several encyclopaedic text books available from which all the facts about orthopaedic disorders can be obtained. The volume of these facts and the wide variety of available methods of treatment make it difficult to select the correct management for a given patient. This small book does not set out to compete in any way with the more comprehensive texts. Our aim has been to provide the reader with one form of management which is of proven value rather than to catalogue all the available methods of treatment. Moreover we have tried in so far as it is possible to describe the management of the patient rather than the treatment of the disease. This advice represents the practice of orthopaedics at the Royal Children's Hospital in Melbourne and is based on the experience gained from the care of a huge number of children with orthopaedic disorders.

Acknowledgement is also given to many teachers in other countries who have added their store of experience to ours over many years.

The resulting mixture is suitable for orthopaedic residents and it is suggested that, if taken regularly, it should produce an orthopaedic consultant who will be able to combine science with sensitivity and efficiency with compassion.

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Contents

CHAPTER 1

Orthopaedic Management in Childhood

The 20th Century has seen tremendous advances in therapeutics—our ability to cure diseases has become so great that medicine over the period has tended to become mechanistic. The doctors have rather lost sight of the patient in their enthusiasm to investigate, diagnose and cure. Nearly a hundred years ago, Hugh Owen Thomas the founder of British Orthopaedic Surgery made the following observation: 'The crying evil of our art in these times, is the fact that much of our surgery is too mechanical, our medical practice too chemical and there is a harkening to interfere, which thwarts the inherent tendency to recovery possessed by all persons not actually dying.'

Over that same period medical education has stressed the scientific approach and little attempt has been made to explore the art of medicine. The modern text book of orthopaedic surgery takes little account of the patient in planning management or designing surgical operations. Teachers in general have tended to avoid discussing such things either because they considered the subject as irrelevant or perhaps for fear of being considered unmanly. In more recent times, it has become apparent that many disorders cannot be understood unless the emotional, intellectual and sociological aspects of the patient are considered. Although the behavioural sciences have studied the psychological mechanisms involved, a detailed knowledge of this is not necessary to the practising physician or surgeon. Rather, he should have an awareness of the problem so that he will want to seek out this additional information and interpret and use it with sensitivity. With children this approach is even more necessary, for the child is often unable or unwilling to discuss his emotional conflicts which may have a direct bearing on his response to treatment.

In summary therefore, the practice of orthopaedics in childhood depends upon two factors. Firstly, an accurate knowledge of the facts of orthopaedics, especially the natural history of disease and the reaction of the body to injury and disease. Secondly, an understanding of the needs of children, namely the child–parent–society interaction; this will determine how all the patients are to be handled, what treatment is best undertaken, and whether the treatment is likely to be effective.

CHILD PSYCHOLOGY

Children are very susceptible to the influence of emotional conflicts and because they find difficulty in discussing these things with adults, they are more likely to express their worries and fears in the form of some psychosomatic disorder. Asthma, enuresis, abdominal pains and headaches are some of the more common manifestations but disorders of gait, backache and various aches and pains are also often encountered in orthopaedic practice. In adolescence, true hysterical manifestations are far from rare.

Early last century, a distinguished physician wrote, 'It is more important to know what sort of patient has the disease than what sort of disease the patient has.' This is especially true in paediatric practice where the surgeon must train himself to consider the pathology of the whole person.

In attempting to find a solution to any given problem it is paramount firstly to determine what exactly is bothering either the child or his parents, and what they expect to achieve from treatment. In many consultations the surgeon will have great difficulty in finding the answer to these questions and, on these occasions, it may seem that the parents are deliberately avoiding saying what it is that really worries them. Often the basis of their concern is some stray remark made by a neighbour which has sown the seed of doubt. The experienced surgeon can often guess what turmoil is going on in the child or his parents and, by discussing this point early on in the consultation, can defuse the whole issue so that the consultation can proceed in a more relaxed atmosphere.

HANDICAPS

'The moment in which they learn their child is handicapped, whether at birth or by later illness or accident, must be for many parents one of the watersheds of life'. Recently, one mother expressed this belief when she said, '. . .the worst day was the day of A's birth—my whole life was changed by that day. From the day of her birth, all our life is finished.' The feelings of parents are a mixture of inadequacy at their failure to reproduce normally, and guilt arising from a suspicion that the handicap is a punishment for some sin committed. It is aggravated by their lack of knowledge of the extent of the handicap and their inability to help.

It follows that a line of communication must be established very soon after birth and that the mother receives accurate and truthful information regarding the abnormality and its likely outcome, and what can be expected from treatment. As maternity hospital staff and general practitioners often do not have sufficient knowledge to do this, both parents should have access to a specialist as soon as possible. The information given must be sympathetic, simple, accurate and, if possible, biased to the optimistic. It may have to be repeated almost word for word a few days later as parents absorb very little of the first interview. Later, it is often helpful to bring the parents into contact with another family with a similar problem or to introduce them to lay literature on the subject. Fortunately, doctors have spent more time and effort in educating the public through the mass media; this has had the effect also of changing community attitudes so that parents of handicapped children no longer have the same feeling of shame at the reaction of others or the dread of being pitied. The surgeon who establishes a good initial rapport with child and parent, will be amply rewarded by their continuing loyalty and the end result for all concerned is likely to be better because of it.

EFFECT ON THE CHILD

The effect of the handicap on the parents is very much related to the effect on the child. As early as 1928, Allan and Pearson stated that '. . . the child seems to adopt the same attitude to his disability that his parents do. If they worry about it, so does he, if they are ashamed of it he will be sensitive too, if they regard it in an objective manner he will accept it as a fact and not let it interfere with his adjustment.' Most parents need counselling to make them aware of how important their attitudes and feelings are in influencing the child's development and behaviour. This process may be aided by arranging meetings with other parents with similar problems, either singly or in groups. At the same time, the parents need help to understand the 'child's eye view' of their handicap and their environment.

When a child has an accident

After the initial shock has worn off, the child should be encouraged to talk about how it happened since the more open the discussion the less likely he will develop hidden fears and nightmares. He may even learn from it and add this to his store of experience. If the young child is admitted to hospital his mother should be with him for as much time as possible in the first few days. The mother herself will require support especially in the case of head injury, and it is essential that the surgeon explain that full recovery is the rule rather than the exception. Neither child nor parent are particularly interested in the details or duration of treatment—only the end result.

The child in hospital

Hospitalisation involves removal of the child from the home and family and is a traumatic event at any age. If a child is admitted to hospital without adequate thought and preparation, serious and permanent emotional disturbance may result.

Separation of a mother from her newborn baby for any reason interferes with bonding—a process of maternal–infant interaction which normally occurs in the neonatal period. Bonding is now regarded as of great importance for normal mother–child relationships and subsequent satisfactory emotional development in the child. Thus, should the newborn require hospitalisation, the mother should spend as much time as possible with her baby and preferably 'live-in'. It is well established that rejection by the mother of her newborn infant may follow separation even for quite short periods of time. This is particularly relevant to infants with congenital malformations who may require multiple admissions.

Hospitalisation in the toddler period is particularly traumatic as no amount of explanation will relieve the anxiety of separation at this age. Toddlers never really settle down in hospital, they cry incessantly until in despair they finally withdraw, lying silently, quietly sobbing and gazing at the ceiling. When such a toddler is discharged from hospital the parents will almost invariably note behavioural problems which may last for many weeks. These usually involve disturbances of sleep pattern, feeding problems and temper tantrums. It is clear that such infants, if they must be admitted to hospital, should have a parent with them—optimally for the whole period of hospitalisation.

In the older age child, proper preparation for planned hospitalisation is necessary. Most children after the age of about 5 years will accept a reasonable explanation for their hospitalisation. The explanation must be given in simple terms, the child reassured that visiting will be regular, and that he will soon be home again. Failure to adequately prepare young children for hospital even in this age group is again followed by behavioural problems on discharge.

Long term hospitalisation or repeated admissions to hospital can similarly result in emotional disturbance unless adequate preparation has been undertaken. In addition to the provision of emotional support, these children require adequate play facilities and, as they become older, facilities for education. It will thus be clear that occupational therapists, medical social workers, and school teachers will play a very important part in the orthopaedic team if the children are going to mature fully.

THE CONSULTATION

To the parent, and to a lesser extent the child, the first consultation is often a very unnerving experience. They are worried and fear the worst. It follows that the surgeon must do his best to put them at ease and this may require a minute or two talking about something quite irrelevant. Country people particularly like to have the fact recognised that they have come a long way for the visit. Children are put at ease by being talked with (not at), using their christian name and given a smile. Older children, especially those approaching adolescence, are very sensitive about their appearance and do not like being accused of being too fat, too thin, or too short in stature. History taking in this context is not very different to any other consultation, but it is important to separate the observations of the parents from what they have been told so that one can clearly define the problem. It should be possible in most cases to reduce the problem to a single word, be it pain, instability, stiffness, appearance, or fear. Each of these will probably require a different solution.

EXAMINATION AND DIAGNOSIS

Examination of the child follows the same general principles as those used in the adult, but there are two fundamental differences. Firstly, whereas the adult almost always co-operates fully to help the examiner, this *co-operation* must be sought for in the child. This is especially so in the infant where special ruses are often required. Often co-operation can best be obtained in the infant if examined on the mother's lap or nursed in her arms, while a feeding bottle will often convert a struggling babe to one that is readily examined. This is especially important in the neonatal examination of hip dislocation which may easily be missed in the struggling infant. Cold hands and rough handling must be avoided at all times. In examining the toddler and young child, co-operation is equally important and careful handling of the situation in the early stages is essential lest the opportunity be lost. A constant stream of irrelevant conversation aids the process of undressing and it is always wise to leave the underpants on in the first instance. Many young children are initially surprisingly modest and will refuse to walk naked until some degree of rapport has been established. The second major difference is that young children, even when fully co-operating, are unable to describe their disability or even localise it with any accuracy. It is for this reason that *observation* to detect wasting or swelling, and to determine the type of limp and its source must be much keener when examining the child. Remember that observations made by the parents are usually accurate and helpful. In the diagnosis of limp, the skills of the examiner will be put to their most severe test and this subject will be discussed in greater detail in Chapter 4.

In all problems concerning the lower limbs and especially the feet, examination of the footwear is essential and is likely to give much valuable information that may not be gained in any other way. If a shoe wears normally, the foot is almost certainly plantigrade whereas even a minimal amount of hindfoot varus will often produce catastrophic shoe wear and distortion of the upper.

COMMUNICATION

Use of simple terms

The problems of paediatric examination and diagnosis may seem difficult but those of communication of ones findings and opinions to the parents are, at times, impossible. The patient or parent frequently misunderstands medical vocabulary or, worse still, places the wrong interpretation upon it so that the message received may be quite different to what the doctor intended. The use of simple terms is thus mandatory although, at the initial consultation, one should especially avoid the use of terms such as arthritis, tumour, spastic, cripple and so on as these will almost certainly be interpreted as meaning something much worse than intended.

Defining the natural history of the condition

Many children brought in for an orthopaedic consultation have variations of posture (e.g. knock knees) which make them appear different from their parents but which are within the range of normality for their age. It is of little use telling the parents that their child is normal without backing this up with a short discussion on the natural history of leg development in the child. It will then be possible for them to reconcile how their child can be normal yet appear abnormal and understand why treatment is unnecessary.

Treatment versus no treatment

In many situations treatment is not indicated because the natural history of the condition indicates that it will grow towards normality, e.g. bowlegs in the toddler. Sometimes the natural tendency seems to need a little help to achieve success and some simple method of splinting such as a Denis Browne night splint is indicated. Surprisingly enough it is much more difficult to convince parents that treatment is unnecessary than it is to prescribe a complicated, costly, and lengthy regime of active treatment. Even after a lengthy explanation that treatment is not needed, some parents will sum up the situation by saying 'So there is nothing you can do for our child.' This leaves the doctor no alternative but to go over the whole ground again—to repeat that there are dozens of things he can do for the child but that, in view of the good prognosis, there is nothing that he should do. Some surgeons take the view that most parents want treatment for their child so they oblige by prescribing some innocuous device such as a Thomas heel to keep them happy. This can be criticised on many counts but mainly because the initial premise is incorrect. Most parents are more interested in being convinced that treatment is unnecessary than in carrying out useless treatment.

The whole question of reassurance is a difficult one but, because it is so often required, the technique should be studied by all those engaged in paediatric practice. From what has already been said it will be obvious that the phrase 'There is nothing wrong' does not reassure. Even when a mother's anxiety about her child arises from not knowing the range of normal variation, there is something wrong if it is only her worrying. Similarly, the advice 'Don't worry' will fall on barren ground unless supported by an adequate explanation of the facts. Finally, it is well to remember that 'Words are not so effective as the way they are said.'

If treatment is indicated because it is known that time and growth cannot correct the fault, it is necessary to discuss the various possibilities and your reason for selecting any particular method. The parents may have a preference for some particular method and this may be allowed but they should always be given advice by the expert as to his preferred choice. It is unfair to suggest a number of different alternatives and expect the parents to make the choice. The prognosis, both with and without treatment, should be defined as accurately as possible and an attempt made to allay any unjustified fears.

Maternal treatment

It is commonly suggested that mothers should be instructed how to carry out stretching and moulding at home to overcome minor deformity, such as talipes calcaneus and infantile wry neck. I believe the practice should be discouraged because the treatment is unlikely to be effective unless performed at least to the point of discomfort and no mother is likely to do this; because the babe does not want to feel that every time her mother appears she is likely to have her neck wrung or her foot twisted; and because the majority of the conditions selected for this form of treatment will recover spontaneously anyway.

Genetic counselling

Whilst the practising orthopaedic surgeon cannot be expected to have a detailed knowledge of genetics, nevertheless he should be aware of the existence of heritable possibilities in any disorder that he diagnoses and alert the parents accordingly. Often the parents will be the first to raise the possibility especially those who have some disorder themselves or who have just produced a child with a disorder. They will want to know the chances that a future child of theirs will be affected and whether the child will pass the disorder on to his own children. In these circumstances, they should be referred to a medical geneticist who can usually give an accurate assessment of the situation. The need for accurate genetic counselling has become even more important now that prenatal diagnosis is possible with many important conditions (e.g. spina bifida) and selective abortion may be indicated.

DEFINITION OF TERMS

In developmental paediatrics and the orthopaedic surgery associated with this, many of the terms are used loosely and interchangeably. In order to promote better understanding and communication, it is important that these terms be defined and used precisely.

Defect—an abnormality of structure from any cause. The adjectival form *defective* is commonly used to describe loss of function when no actual structural defect is present. In these circumstances it is preferable to describe the loss of function as an impairment rather than a defect.

Malformation—an abnormal development or formation of part of the body. This implies that the defect is of congenital origin.

Deformity—any deviation from the normal shape and form. It is often used as a synonym for malformation but, strictly speaking, the term should be restricted to describe a change which has occurred to a part *after* birth. A deformity may be postural and fully corrigible (e.g. a drop foot) or it may be fixed and rigid. This rigidity may be due to contracture of soft tissue, to deformity of bone, or to a combination of both.

Disability—any abnormality which interferes with function.

Handicap—a disability which is sufficiently severe to impede development, activities, expectations and employment. It is important to realise that the presence of a malformation, defect, or deformity does not necessarily imply an impairment of function. Similarly, a disabled child may be taught or may learn to bypass his disability so that in practical terms he is no longer handicapped.

Handicapped, disadvantaged, deprived—Sheridan has made a clear distinction between these terms which often have a legal significance. In contrast to a handicapped child, a disadvantaged child is one who is subjected to a continuing inadequacy of materials, educational and emotional assistance which will result in his failing to achieve his inherent potential. A deprived child is one who is deprived of a normal home life and may on this account require custodial care.