In My Own Time

Bone and joint tuberculosis

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During my early orthopaedic training, between 1936 and 1939, I failed to appreciate the full horror of bone and joint tuberculosis, with its protracted treatment and crippling results; I encountered several cases during the war, but it was not until I became superintendent of the Derby County Tuberculosis and Orthopaedic Service in 1947 that this was borne in on me. The Orthopaedic Hospital at Bretby was almost entirely devoted to these disorders, and few interesting orthopaedic cases such as congenital dislocation of the hip, clubfoot and so forth were there to "leaven the lump" at that time.

Years away from home

As I took my first 8.45 am walk to the hospital through a cold, foggy late September morning, the happy voices of children greeted me. They were already outside on the verandah wooing our only allies in the treatment of tuberculosis—the stimulating effect on metabolism of cold and open air, and prolonged, uninterrupted immobilisation which helped to confine the lesion as much as possible. I did not at once appreciate the strain on the patients which these years of immobilisation and isolation from their homes imposed. The morbidity flowing from this regimen required to be mitigated just as carefully as the ravages of the disease. Indeed, I want to emphasise this aspect rather than the textbook details of mortality rate, sinuses, paraplegias, amyloidosis, arthrodesis, and even life-saving amputation for the tuberculous tarsals.

Posthypnotic suggestion seemed to ameliorate the initial stages for some upset patients. The occupational effect of schooling was clear early on; we found that children were less happy and more given to complaining during holiday time, and I made considerable efforts to find student teachers or other helpful souls to teach and occupy the children throughout the school holidays; in this, I had a certain amount of success.

In this type of hospital parental visits were generally limited considerably; the routine at Bretby was fortnightly visiting only, the rationale being that, with several years of sanatorium life ahead, the child should take on the nursing staff as surrogate parents' and so reduce the distressing periods of weeping in the early stages after parents departed. It was not felt that the daily cry, which was so often seen in the acute hospital when the parents' visits ended, was a good thing, though the distress and anxiety exhibited by the child when ultimately ready to leave hospital and return home was worrying. Two other factors affected frequent visiting. Firstly, there was the very long

distance from the other end of the county that some parents had to travel, and which resulted in some children being neglected. A communal bus from Chesterfield for the fortnightly visit helped here, and we did our best to encourage parents to "visit" the children on each side of their own in the wards. The other worry was the possible introduction of infectious diseases from siblings, the ordinary diseases of childhood which could lead to closure of the ward for over a fortnight. With the increasing influence of paediatricians, we entered on the experiment of unlimited visiting and encouraged even more strongly the widespread visiting of parents to neglected children. On the whole, I believe that there was no serious introduction of infection, and there was some increased happiness (but also restlessness) among the children.

Adults were a more difficult problem. Young married couples were distressed if any visit was missed and, when unlimited visiting was introduced, the patient became excessively demanding on the partner at liberty and apt to be suspicious—a suspicion that could easily be increased by malicious remarks or letters from outside. Nothing but a deep Christian faith seemed to be any protection against this. Protecting empty houses was another source of anxiety, particularly if the house was rented from a council and the patient lived alone.

Occupying the patient during his hospital stay gave the most problems. An extraordinary number of patients were perfectly prepared to do nothing but stuff toys or make straw stools or lampshades. The warning that their disability would make it impossible for them to pursue their previous occupations stimulated few adults to try to learn a new trade. It was with some triumph, therefore, that I persuaded some of the younger adults to take Open University courses, learn languages, secretarial duties, and even shorthand and typing. One draughtsman from a car factory was supplied by his firm with a modified drawing board to use over his bed while still recumbent and so carry on useful work of his own for the company. But the number of adults who were prepared to spend their years of recumbency merely reading westerns was distressing. It made me wonder whether the present penal system could have any disciplinary or corrective effect on the criminal mind—duration, hardly; the introduction of acute discomfort, possibly.

A few patients were so upset that it was essential to try to arrange treatment at home and, on their plaster shells, they were sent home when apparently stabilised on their treatment. This had a remarkable effect on one mother, who was evidently going blind and was diagnosed as having malignant hypertension. After returning home, still on her back on a frame, her blood pressure returned to normal. It is some measure of the parsimonious attitude of the Health Service that, although a consultant who visited the outlying clinics already had a full day's work, if he visited these individual patients, he was not allowed to claim for domiciliary service.

The prolonged treatment required is seldom appreciated today but in the case of a child aged 7 who entered hospital with tuberculous spine or hip—particularly where the diagnosis was

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late—with advanced destruction, a period of some two to three years' immobilisation and imprisonment was to be expected. Spinal lesions emerged with a "hump back"; and in the case of a tuberculous hip, the damage might be a destroyed hip, disorganised knee, and some 3 to 4 inches of shortening of the limb as a result of prolapse of the epiphyseal cartilages of the knee into the mushy metaphysis. Additionally, the need to wear a block leather support until old enough for sound fusion darkened the outlook of release, and recrudescence of disease in any unsoundly fused joint was always possible.

We quickly found that the solution to a damaged knee joint was to apply traction only to the thigh and insist that regular flexion and extension of the knee against gravity, and even against some resistance, was undertaken. Pugh's traction was discarded—raising the foot of the bed was an unpleasant initiation to hospital life, painful at the hip and, if prolonged, might lead to otitis media and certainly to a permanently lengthened tendoachilles unless the back of the heel was kept off the bed. The Jones's frame, followed by the plaster shell with facilities for turning the patient on to the face every day to avoid the formation of renal stones, seemed best, and an adjustable-angle suspension or subframe gave a little more amenity to the bedfast patient.

As a fortuitous member of Sir Howard Florey's original

penicillin trials at 48 General Hospital in 1943, it was not surprising that I should start searching for some medicament to help the body defeat the tubercle bacilli. Clearly, this would be difficult to find, because the reaction of the body to the organism was so inefficient as to suggest there was some resemblance in the metabolism of the two organisms. I tried Sulphetrone in view of the similarity between *Mycobacterium leprae* and *M. tuberculosis*, without any noticeable effect, after pushing the doses until the patient was cyanosed.

A godsend at last

The need for an agent to curtail the long period in hospital by quick arrest of the organism was pressing. The news about Streptomycin was a godsend; I obtained supplies from the Medical Research Council and perceived a beneficial effect which was, however, seriously limited by the toxic nature of the drug. It seemed that streptomycin was potent only for some three months, and the hope of using this period to a maximum raised the question of surgery. In many cases which ultimately reached quiescence, and in operations such as trochanteric osteotomy, I had seen the great volume of dead tissue filled with caseation, and we knew the bad prognosis of the large paravertebral abscess

MATERIA NON MEDICA

Cum grano salis

Salary, subject of eternal contention, originates from the allowance of salt and other necessities, collectively known as salt, provided by the ancient Romans to their army and civil servants; when money was substituted for salarium in Imperial times the stipend maintained the original name. Habitual use of salt paralleled the change from a nomadic to an agricultural existence, so that it became an important commodity, and its sanctifying influence in the cults of ancient nations is reflected in its offering by Greeks, Romans, and Semitic races. Trade routes were directed to its sources. Along the Via Salaria, one of the oldest roads in Italy, salt was conveyed from Ostia to other parts of the country. In Ethiopia and Tibet cakes of salt substituted for monetary exchange. Many rulers have used it as a readily controlled taxable agency, as instanced by the onerous gabelle, instrumental in augmenting the discontent which culminated in the French Revolution.

Symbolic allusions are widespread, such as wisdom, friendship, and a guard against the forces of evil. A covenant of salt and the eating of a man's salt portray incorruptibility and abiding trust, mirroring its preservative qualities, while Cicero counsels the placement of reliance and trust only after eating many a peck of salt in association. To be worthy of one's salt reflects efficiency and capability. Liveliness and vigour predominate in the salt of youth, and Shakespeare used the allusion to denote strong amorous passion. Likewise, elegant wit and well-expressed sparkling thought are implied in such terms as Attic salt. That a person "will not earn salt for his porridge" disparagingly testifies to his inability to gain a livelihood, whereas the "salt of the earth" conveys sublime praise.

Superstitions associated with salt include helping one to salt and so to sorrow and that the spilling of salt is ill-omened, following which a little should be thrown over the left shoulder to propitiate the evil powers. Satan was considered to hate salt so salt was placed within the coffin.

In the phrase "to salt a mine," which first appeared in Australia in 1864 and refers to the practice of scattering gold dust to mislead the purchaser of a mining claim, salt implies an additive flavour to the transaction. Similarly, to salt an account indicates an assessment of excessive value.

Up to Stuart times the term "salt" referred to the large ceremonial dish which rested in front of the master of the house in the centre of the principal table of the great hall, "salt cellar" being applied to the lesser receptacles elsewhere. Rank determined the seating arrangements and one was accordingly deemed to be above or below the salt. The earliest English salt dates from the fifteenth century.

Pliny narrates the story of Pompey, who, when he captured the

palace of Mithradates, discovered there an antidote to poison, which "was to be taken fasting, a grain of salt being added"; hence, cum grano salis implies the acceptance of a statement with considerable reservation. —J SHAFAR (retired physician, Burnley).

Cornerball

Just over a year ago a low-cost sports hall opened at South Cave on Humberside. The manager found that the most frequent request was for squash. As squash players know, there are never enough courts and those that are available are usually fully booked. Squash courts, however, are expensive to build and maintain and so were not included in this venture. After much thought and experimenting with the available space and structures the manager, Mr Lou Armstrong, invented a new game. Cornerball was born on 6 July and was officially released to the public on 22 August. I suspect it will become a craze to rival squash and even skateboarding.

The basic materials are a corner wall with a 90° degree angle; the rest of the court may be squared off or fan-shaped as space allows. The wall markings have an apex near the top of the corner and triangle down to the dead-ball line above the floor (as in a squash court). Back walls are not needed in cornerball but we use low barriers to stop the balls rolling too far. There is one service position equidistant from the two walls. A squash ball is used, the faster ones allowing more rallies in this game. The bat is like an overgrown table-tennis bat with rubbered surfaces and because it is a hardwood base there is a wrist loop for safety.

I experienced two difficulties when first playing cornerball. I missed the ball completely in my early shots as I had been used to the long handle of the squash racket—the cornerball bat is much shorter. The second problem was with obstruction. I found it easier to obstruct and be obstructed than with squash. But herein lies the value of the game. In squash you must be fast on your feet, in cornerball you must be even faster to overcome the problem. There are a few other differences in playing cornerball: there is only one service attempt; points may not be scored off a service; scores are up to 11 with two clear points and the best of three games to win. There are a couple of other rules about house lines, which are difficult to describe without seeing the court and playing.

The appeal to young and old alike has been tremendous so far and there are already addicts at South Cave. The potential is enormous for indoor, outdoor, home, and junior courts, for frustrated squash enthusiasts and those who simply enjoy batting a ball against a wall and never thought of much else to do with it. —PENELOPE A BROUGHAM (SHO in medicine, Hull).

with regard to relapse rate in spinal TB. Was it possible during this three months when streptomycin was effective that a surgical debridement of the tuberculous lesion would not only get rid of this dead poisonous tissue (which the body took years to eliminate) but also permit the large molecules of streptomycin to reach more readily the tuberculous focus? Could one convert it to a largely vascularised area instead of one of dead tissue? The role of streptomycin was most valuable in the confidence it gave one that there was unlikely to be any serious dissemination of tubercle bacilli as a result of surgical disturbance of the lesion, and this indeed proved the basis of a great advance in the treatment of bone and joint tuberculosis.

Introduction of the antibiotics—para-aminosalicylic acid, isonicotinic acid hydrazide, and, later, iproniazid (the remarkable antidepressant value of Marsilid was, I think, first noticed in this context), ethambutol, and rifampicin—confirmed this line of treatment where advanced disease and necrotic tissue are present. Debridement reached its greatest value in clearance of compressive debris from the front of the paralysed spinal cord, drainage or excision of the paravertebral abscesses, and even anterior grafting of the intervertebral joints—all under cover of the antibiotic umbrella.

In the early days there was a curious tendency to feel that

only one drug should be given at a time, the other antibiotics being “kept as another shot in the locker,” but I was able to satisfy myself that the most important regimen was a combination of streptomycin, isonicotinic acid hydrazide, and para-aminosalicylic acid in considerable individual dosage. In this way, a bactericidal level of drug was present in the blood when surgery was undertaken, and could be maintained for many months. The procedure was widespread and, while I had the privilege of describing it to the British Orthopaedic Association in Buxton in 1954, numerous confirmatory articles appeared in the journals.

Improvement in the outlook for patients with tuberculosis is wonderful; instead of the horrific years in hospital, as described in the earlier paragraphs, a relatively short period is satisfactory, and from the admission of a case of tuberculous hip, diagnosed reasonably early, one may expect a patient to be at home, walking and soundly convalescent, before the end of 12 months—provided the antibiotics are taken regularly.

But tuberculosis is not conquered, and I must warn that, if anything, the number of these cases is increasing again and that the disease remains a profoundly dangerous and crippling one. Nevertheless, with great satisfaction, I feel that “in my lifetime” the picture of the disease has undergone a splendid change.

View from childhood

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As a child, I had a tuberculous lumbar spine. In those days, the treatment was complete immobility, and I was put on a spinal frame from the age of 3½ until 7½ with only my arms free to move.

I was at the Royal Liverpool Children's Hospital in Heswall, overlooking the River Dee and the Welsh hills, for a year in an open-air ward—by that I mean one side was completely open to the weather, and I can still remember the snow and hail blowing in during the winter. I also remember that the knuckles of my hands were split and suppurating with chilblains. There were no teachers in hospital then; all I can remember being taught was to make wicker baskets, like the gypsies do, and the wicker had to be wet to make it pliable—it was cold and uncomfortable. Those toys that were given to me to play with had to rest on my chest. I remember being given a plate of food, again resting on my chest, and a spoon to eat it with, having to use the same spoon to eat the pudding, and the horrible taste of the first spoonful—a mixture of stew and pudding (usually rice). I got to hate rice pudding, and one day took the plate in both hands and threw it over my head behind the bed. I was terrified at what would happen to me for being so wicked. Perhaps this was a response to inactivity and frustration.

When I had my back washed, one nurse stood at my feet and another at my head and, after undoing the leather straps round my legs and body, they crossed their hands, one grasped my ankles and the other my shoulders, and they turned me over on my face—thus keeping the spine straight. I also remember

being taken out of the ward to somewhere else and given massage to my back—with lard, I think. It seemed heavenly.

As a treat, I was occasionally taken out of the hospital in a long spinal carriage to see the outside world. The frame I was on was made in such a way that there was a bar of iron between my ankles for lifting purposes.

Part of the four years I was on my back was spent in West Kirby Convalescent Home, and part at my parent's home—where the windows were taken out of my bedroom. Looking back, it must have been a great hardship for my poor mother. I was the youngest of eight children, so having me to look after must have been the last straw.

Finally, a psoas abscess about the size of a goose egg developed in my right thigh and this was incised to let the pus out. It filled up again and was again incised. This was when I was 7½: the scars are still visible. Later on, I was taken off the frame and a leather and iron back support was fitted, straps being put from the back over my shoulders, under the axilla, and fastened to the support at the back; with similar ones round my groin, and straps round my body. My legs were put in plaster of Paris.

I was taught to walk by pushing a walking machine round the ward, an alarming experience after being horizontal for so many years. I progressed in walking round the ward by holding on to the ends of the beds. When I was allowed home I moved about by holding the furniture. After several months the plaster was digging into the back of my legs, causing pus to form, and I was taken out of it and wore calipers. Eventually, I left them off too—a great day. By the time I was 14 I was allowed to leave the back support off, and enjoyed the wonderful feeling of freedom this gave. From an x-ray film taken in later years I was told that two of the lumbar vertebrae had fused.

It was a big disadvantage not having any education in my early years and I am always interested when I hear talk about children's education and the effects it has on their future. Even so, I became a chartered physiotherapist and worked until I was 70.

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