A CLINICAL LECTURE ON LATERAL CURVATURE OF THE SPINE.

Delivered at University College Hospital.

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GENTLEMEN,—We have in the ward a young woman with lateral curvature of the spine, a malady which comes under notice far more frequently in private than in hospital practice. We are often asked by anxious mothers if there is anything wrong with their children's backs, and this anxiety is not unnatural. Few backs are quite straight, and in many young people there is a strong tendency for the trunk to lose its habitual equilibrium, and for the spine to lose its perfect straightness. We meet with two classes of lateral curvature, according as the curvature begins in the dorsal or in the lumbar region. A common instance of the first class is in a girl, say of 16; the dressmaker says: "Your shoulder is growing out," and in most cases it is the right blade bone which is more prominent than the left. The mother is alarmed, and at once takes the daughter to her doctor for examination.

Now, you can examine a girl's spine without any unpleasant exposure, if the clothes are properly pinned up round the pelvis. I show you here a diagram of the back of a healthy woman. Note that under normal conditions the scapulae above, and the folds of the buttocks below, are perfectly level. But if one foot is placed upon a book the crest of the ilium is raised, the pelvis is sloping, and a curve is produced in the lumbar spine. This fact is important, because in many of these cases the pelvis is not straight, one leg being a little longer than the other. Few persons have eyes of precisely the same focus, and few have legs of quite the same length. A trifling illness in early life, with pain in one leg, perhaps in the hip, may have checked the growth of that limb. The effect of even a slight difference in length is to cause a tilt of the pelvis, the lower side corresponding to the shorter leg.

The tilt of the pelvis accounts for the lumbar curve, but it only accounts for the dorsal curve when that is secondary to the lumbar curve, and is in the opposite direction, to preserve the equilibrium of the trunk.

There is another class of cases, however, in which the dorsal curve comes first. A curve may begin there in consequence of a severe attack of pleurisy or from an empyema, which leads to contraction of one side of the thorax; but quite apart from this we have curvature beginning in the dorsal spine, and I believe the correct explanation is that which has been given by Mr. Barwell. The serratus magnus, which determines the fixation of the scapula in the movements of the arm, tends to pull the ribs into an abnormal position if more work is thrown on one side than on the other. The connection of the ribs with the vertebræ causes the action of the serratus on the ribs to produce a rotation of the vertebræ on their vertical axes. The altered position of the ribs involves an undue prominence of the scapula on that side, and then the girl's shoulder is said to grow out. But other causes are often in operation. Habitual muscular action is frequently influential, and many young girls have more work put upon them than they can stand. Among the poor they are set to carry children almost as big as themselves, and in the middle and upper classes they are made to practice the piano for hours, or to draw or to write with arms and body in a harmful position. Especially in writing at a flat table the elbow is fixed, and there is a strain on the scapula which the serratus magnus opposes by pulling on the ribs, and the effect is to cause a gradual rotation of the vertebræ. This result is slowly produced, but habitual posture in the course of months has a powerful effect. The ribs are drawn backwards and the scapula stands out. This theory of the influence of the serratus magnus may not be all the truth, but after thinking the matter well over I am convinced that it is true, and it is especially confirmed by the place at which this dorsal curve begins.

On looking at the patient before you, you see how the scapula projects, and you can notice that it is due to the backward prominence of the ribs under it. When the patient folds her arms and stoops forwards you see the curve in the dorsal spine. We can only perceive it by the spinous processes; the transverse processes are concealed beneath the muscles, or they would show us the rotation of the vertebræ on which the curvature depends. There is in this case a history of a chest illness in early childhood, which was probably an attack of pleurisy, determining a change in the position of the ribs, until you now see the ultimate consequence.

In the other patient I show you there is such a curve in the lumbar spine as to bring the last rib on one side almost to the edge of the pelvis, so that I can hardly get my finger in between them. The pelvis is not level, and if I mark with chalk the position of the spine you will see the curve. I put a book under the foot of the patient on the lower side, and the deformity disappears.

It is important to measure the legs in these cases, but a little tact is wise, and it can be done effectually without unpleasant exposure. If you try to measure the legs with a tape you are very likely to be misled, but make the girl lie flat on the floor, and draw up her legs by bending her knees. If one knee is lower than the other, the feet being even, that leg is shorter than the other. But a still better test is to observe the pelvis and lower part of the back when the patient is standing and the feet together.

I am sorry to say that lateral curvature of the spine has been the cause of a system of practice which is a disgrace to our profession. I show you some of the apparatus such I have again and again taken off the backs of girls whose spines were perfectly straight.

I remember two sisters being brought to me fitted with new instruments. I had the supports taken off and examined one girl's back, and said: "She has certainly a slight curvature. I do not prefer the instrument she has, but it is a well-recognised method." And then I examined the second girl's back, and found that her back was perfectly straight; there was nothing the matter with it. "Well," I said to her, "your back is quite straight." "Oh, yes," she said, "I know it is, but the doctor said if I did not wear the apparatus it would soon be like my sister's!"

These spinal supports are made with the idea that when you lift the girl up and hold her up with your hands you straighten the back; and these machines are intended to do this, but you must remember that you are standing away from the girl, and it is another thing when you put an instrument upon the actual patient herself and expect that to do what you have done from quite a separate base. Then you see cog-wheels to increase the pressure on the ribs, and there are crutches to support the arms. The gentleman who orders the instrument keeps the key. The mother and daughter have to go to him once a week in order that the instrument may be screwed up and adjusted, but a few turns reach the end of the adjustment, and then it is necessary for him to unscrew it and set it afresh. It is a monstrous thing, and, as far as I have seen, no good results from it or can result from it except to the pocket of the gentleman who ordered it and the instrument maker who made it. There are a few, a very few cases in which a support of this kind, with crutches under the arms, may be of use, but as a rule it is harmful.

I do not say that I never order apparatus, but when there is a primary curve in the lumbar region all that is really necessary is to rectify the shortness of one leg, which is the common cause, by a compensating boot. But I do not compensate by adding to the boot for the shorter leg. If, for instance, the left is half an inch shorter than the other, the bootmaker should take a corresponding amount from the heel of the right boot. Remember that to get such a thing done properly you must take the trouble to write down the precise instructions as to what is to be done. The object is to get the pelvis straight by raising one leg or by lowering the other. It is better to first lessen the thickness of the sole of the boot on the longer leg, and only to add to that of the other if the first is insufficient. If an apparatus is needed it should be worn only in the daytime, and be carefully attended to so that it does not make the skin sore by chafing.

Some apparatuses are simply stays with supports added to them; but the important thing that should first be attended to in such cases is to see that a girl has plenty of room in her clothes. Make a girl unbutton her clothes and fill her chest by a deep inspiration. You will then often find two inches between the buttons and the button holes. When the dress is fastened it is impossible for her to fill her chest with air, and the first thing is to get rid of this hindrance to expansion. The best method to adopt with such cases in order to secure the filling of the chest with air is to have a rope put up in some convenient place with knots on it. Let the girl, with as little on as may be, try to climb up the rope until she is on tiptoe, then take three deep breaths and let herself down again gradually, and presently repeat the proceeding three times. I am accustomed to write the directions down on paper, and make her keep it in her bedroom. It is well to write these things down with every formality as if it were a prescription. The patients may not carry out your prescription, but they are more likely to do so if you go through the formality.

Next, it is most important that the patient should avoid any habit tending to throw work on one shoulder more than on the other. Too much work should not be thrown upon the muscles of the back. In piano playing, for instance, it is well that the back should have a firm support behind it, and when children play the piano take care that the feet are always upon a stool and not dangling down. Take care also that all writing and drawing is done at a sloping desk, the girl sitting on a chair that is not too high.

With regard to exercise in these cases, if the patient can ride a horse or a pony it is a good thing, but a girl should not always ride with the crutch of the saddle on the same side. Small side saddles are made for children with a crutch that can be shifted.

Shall the girl be made to lie down or not? I believe that lying down is not of the slightest use in these cases. The practice is an old one, and it unquestionably rests the muscles, and it is wise to make a girl lie down for an hour after a ride or walk, but simply to rest the muscles, and not with the view of acting on the spine.

Such is the general treatment of these cases. As far as you can avoid special stays. There are some severe cases which require instrumental supports, especially cases in which bony deformity has resulted from rickets; but you should assure the parents that they are not to cure the disfigurement, but simply to prevent it becoming worse.

Some years ago I served on a committee appointed by the Clinical Society to consider the question of the treatment of lateral curvature of the spine, and I will read to you some of the conclusions we came to.¹

"Cases without Osseous Deformity."—The Committee feel that while gymnastic exercises prove very useful in a great many cases of pronounced lateral curvature by improving the muscular power and relieving pain, yet that it is essentially in cases without osseous deformity, and when the curvature depends on flaccid muscles, relaxed ligaments, and on a general want of tone of the system, that this plan is indicated, and most likely to prove beneficial and even curative. Moreover it seems not improbable that the use of mechanical supports in such cases tends to maintain the curvature by preventing or limiting voluntary muscular action, and thus withdrawing from the muscles their natural stimulus to action and healthy tone. On the other hand, there are cases of lateral curvature in children too young to appreciate the dangers of faulty positions, and too weakly to keep themselves in improved positions after drilling without some extraneous aid. In such cases some means additional to exercises may be necessary to prevent the assumption of these faulty positions.

"Cases with Osseous Deformity."—For cases in which there is more or less well-marked osseous deformity treatment must necessarily vary according to the special needs of the case, a cure of the deformity, or even much alleviation, being quite impossible. In many of these cases the patient complains of pain, which pain is relieved by the use of a well-adjusted support, a fact to which the Committee can testify from personal observation. On the other hand, the Committee have seen great relief to pain afforded by gymnastic

exercises without the use of mechanical supports. It seems very doubtful whether any real or lasting improvement is procurable by any method of treatment whatever in the later stages of such cases."

HYSTERICAL (SO-CALLED) AND FUNCTIONAL DEAFNESS.

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THE "Case of Functional Deaf-Mutism" related by Dr. W. B. Ransom in the BRITISH MEDICAL JOURNAL of March 2nd induces me to offer a few remarks on a class of cases for which I suggest no name for the present, except to say that any definition hitherto in use is not strictly accurate. They are generally spoken of as hysterical deafness, sometimes as functional deafness. I do not for one moment venture to criticise Dr. Ransom's definition of his particular case, but those to which I refer present so many points of similarity that they may usefully be laid side by side with his case in order to elucidate their precise nature. I am sure that Dr. Ransom would not object to this use being made of his case under any circumstances, but it becomes especially valuable for the reason that he adopted probably the only method which would have instantaneously cured his patient, or, speaking more accurately, would have at once put an end to both the mutism and deafness, as indeed it did.

To illustrate my meaning I will briefly relate a similar case so far as the so-termed hysterical deafness is concerned.

Some years ago a young lady, aged 17, in every way healthy, and exceedingly good-looking, was found one morning by her friends to be absolutely deaf to all sound. All communications had to be written, and she replied to them as usual. Her voice was not affected as to tone. After a week or so, she was brought to me by her medical attendant and her mother. The external and middle ear were quite healthy. A great many attempts had been made to try if she could hear anything, on both sides, in front of her, and behind her. But do what they would, she never evinced the slightest perception or gave the slightest start, and they were one and all quite certain as to the complete deafness. I was tolerably familiar with the demeanour and voice of persons who, with good hearing to start with, had suddenly lost all perception to sound, and I was quite certain that this girl could hear as well as ever she did; so I was exceedingly careful not to let her know that I had the least suspicion she could hear, and I explained (in consultation) to the medical attendant what I believed was the state of the case. I suggested that with his consent and her mother's I should arrange that she should suddenly apparently regain what had really not been lost. My plan was simple enough—that she should walk through two rooms into a third, and that as she entered the third room, from a point where she could not see, a gun should be fired. Without any doubt she would then have been so startled that she would have displayed to us all that she heard. From that instant she would no longer have been deaf. For reasons which may have been quite good, my friend objected to this, and especially on the grounds that her mother would never consent to it, so certain was she that her daughter was actually quite deaf. I then said it would be best to apparently accept the deafness as an incurable affection, with the perfect confidence that one day she would appear with the hearing as completely and suddenly restored as it had been completely and suddenly lost. So I saw her no more, but some months afterwards I saw a relative of hers who I happened to know, and he informed me that about six months after my examination she came down to breakfast hearing quite well.

Now, surely this case would be very inaccurately described as "hysterical" deafness. So far as I understand, if a young woman has hysterical paralysis of a limb she firmly believes that she cannot move it, and she cannot until some strong emotional influence has demonstrated to her that she can do so. In the case of a special sense like hearing, the girl cannot be under the impression that she does not hear. She cannot help hearing; it is not a question of loss of power

¹ *Clinical Soc. Trans.*, XXI.