Man diskutiert die Gründe und es scheint mehr als vermutlich, dass es sich um eine direkte Läsion der Schwellgewebe während der Operation handelt.

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Discussion

MR. J. COSBIE ROSS (*Chairman*). We have now available 20 minutes for discussion. I think it was Dr. Talbot who said that when the experts on paraplegia attain perfection there wouldn't be any need for orthopaedic surgeons or neurologists or plastic surgeons. That state of grace has not yet been attained.

There are just one or two points I would like to mention, if I may, before I throw it open to discussion. The first is about the question of bleeding. Now, I don't think that this should arise at all if the operation is carried out in the classical way. If the area that is about to be divided is first coagulated with the electrode and then divided with a Collins knife—no loop at all (I think the loop's a mistake)—bleeding is minimal, and I think Mr. Gibbon will bear me out that we've had no trouble with this for many years. Our first report did report bleeding, because mistakenly we used the punch for the first three or four cases, and it proved a mistake for it caused a lot of bleeding. However, by using the simple technique I've just mentioned, the bleeding is trivial. The extent of the cuts we have carried out *veru montanum* downwards for about 1·5 cm. I just want to remind our Geneva colleagues that reports on the follow-up of cases have been available since 1956 and we've always pointed out that these are followed up once a year and that sometimes it is necessary to repeat the operation. In fact it's better to do too little on the first occasion rather than too much.

I was very interested in Dr. Perkash's paper on the 12 o'clock division. Many, many years ago—Sir Ludwig will remember this—Bors, when he was describing the external sphincter, pointed out that there was an aggregation of striated fibres at 12 o'clock in the anterior commissure and this may well be the reason for the very successful results which obviously followed that division. Now, conversely, everything is rather thin there, and I've always been rather worried and concerned about whether or not some complication might arise.

Those were the only points. I would like to ask Dr. Dollfus whether he thinks that the absence of erections is permanent and whether he thinks that the psychological factors are important. And the other plea I would make is that, obviously the last word has not been said on the structure and the function of the external sphincter, and it does require a considerable amount of further study I think before we reach the final truth.

It is now open to discussion.

DR. ROZIN (*Israel*). I would like to ask Dr. Thomas how large is the percentage of loss of erections? This is very important to know as we now have well-informed patients who sometimes refuse external sphincter resection because of the information they have regarding loss of erections, although transurethral may be indicated.

DR. THOMAS (*G.B.*). I simply can't explain the difference in results. The surgery

was necessary in each case that we did. There was no question about it—there were definite indications for the transurethral surgery. Even knowing these facts now I would not go back on my decision to operate, in that particular group of patients.

DR. DOLLFUS (*France*). The two cases with very high lesions which I mentioned in my paper, were complete except for a very small sacral sparing in the first case. In these two cases the loss of erection was noticed by the patient himself, the nursing staff and by the wife in one case. Before asserting that the patient has lost his erection I think we should be very cautious as the loss may be only temporary. In the last case of incomplete lesion below L1 there was certainly a psychological element. However, I think the psychological factors in erections have not yet been completely evaluated.

SIR LUDWIG GUTTMANN (*G.B.*). With regard to the psychological factors, I think we have to consider one point—that is the point of fear to carry out intercourse and this applies, in particular, to cauda equina lesions. If a cauda equina patient can get erections at will he can carry out intercourse, but some are afraid and give up after the first negative result. That is why, from the beginning, particularly in cauda equina lesions, one should encourage the patient. I referred in a previous discussion to one of my patients from the war who came to me and said 'I can't carry out intercourse because of pain'. I encouraged him to continue and, in due course, the pain sensation was replaced by a feeling of warmth and the pain gradually disappeared and finally he carried out intercourse quite well and the feeling was not unpleasant. In another case, a newly-married patient came in with a suprapubic cystotomy drainage which we removed. I had to be firm to persuade him to go home to his young wife and try out intercourse. He was away four weeks and came back a completely different man and happy about his success. I encouraged him to go home for a longer period and the result was a healthy baby girl. That man, who was a bricklayer before his injury, is employed as a cobbler and doing very well for himself. Some time later, I received a brief telegram from him: 'Twins, Sir!'

DR. DOLLFUS (*France*). The case given me by Hachen is a typical case representing psychological factors. A tetraplegic had a sphincterotomy, and lost his erections after this The day he got married he lost them, but apparently his wife was a very good rehabilitation medical officer!

DR. J. WALSH (*G.B.*). First of all, I would agree with Paul Dollfus here on the question of psychological erections. I think we have all seen this a number of times. He also mentioned the problem of how do you assess erections. We've had two definites and one doubtful case of loss of erections after sphincterotomy. We had them in the last few months, and I begin to wonder, with regard to this gravely high percentage in your cases, whether if we all went back and looked at this we would find an awful lot more than we have found so far.

MR. GIBBON (*G.B.*). Dr. Walsh, in that slide I was trying to show the theoretical influences on muscle spasticity of lesions at different levels, in relation to the sympathetic innervation of the urethra about the dorso-lumbar junction and the sacral centres for the parasympathetic innervation. One could have a lesion above both those centres and would get the maximum spasticity in both types of muscle theoretically, or a lesion in the region of the sympathetic outflow which would give you flaccid plain muscle and yet act as striated muscle, a lesion between the two outflows and finally a lesion of the sacral segments themselves. We are trying to analyse urethral pressure profiles in relation to these four different neurological levels and see whether we can make sense of it. I don't know yet whether it will work out as it might do in theory. We are also doing the urethral and pressure profile in the supine position, in the upright position and before and after giving phentolamine. This ought to give interesting information and I hope other people will help to provide the necessary statistics for this.

DR. MADERSBACHER (*Switzerland*). I just want to make one remark. You can diminish the pressure in the urethra proper but you cannot, I think, alter the pressure in front of the external sphincter. It seems to me that you can't influence the striated muscles but you can influence the smooth muscles.

MR. N. GIBBON. I was referring to the cauda equina lesions and it is possible to alter the urethral pressure profile with blocking agents. Conversely, most of the published papers do not report any improvement in emptying the bladder without a blocking agent. There are a few exceptions to this in the literature, but it simply emphasises the need for further research in this field. Of course, if a series of longer catheterisations cause fibrotic changes in the urethra, this is a different matter altogether.

UNNAMED SPEAKER. The assessment of alcohol blockade in the suprasacral regions is that any method of urethral pressure measurement such as the urethral profile is a static measurement not a dynamic measurement, and the static measurement of urethral pressure may bear no resemblance to what is happening during micturition. Therefore, any assessment of alcohol blockade must rely upon uromanometric techniques and flow measurements.

DR. PERKASH (*India*). None of the patients that we operated on are incomplete, they were all complete lesions. I do not like to operate on any patient who is incomplete for at least two years. From our studies on the effect of Dantrolene Sodium it was found that the reflux, which the patient with incomplete lesion was having before Dantroline, had disappeared. So I really would say that no incomplete tetraplegic should be operated on and should always be tried with medication because by carrying out sphincterotomy he is going to have some degree of incontinence, and if he is going to recover reasonably well within a year or two then he would not like to wear a condom for the rest of his life.

CHAIRMAN. That completes this session, which I think was of a very high standard and I thank all the speakers on your behalf.