

which he found that the gubernaculum, instead of being attached to the epididymis or vas deferens, ended in a brush of fibres lying free in the peritoneal cavity, the testicle in this case remaining in the abdomen. Again, the fibres of the gubernaculum attached to the scrotum may not exercise sufficient traction to cause the descent of the testicle.

2. Some obstacle in the inguinal canal, e.g., a plug of fat, may prevent the passage of the testicle, or the mere narrowness of the canal has been alleged as a cause.

3. Adhesions to the viscera or the abdominal wall, consequent on peritonitis, as in a case recorded by Mr. Wood.

4. Shortness of the vas deferens or of the spermatic vessels.

5. Fusion of the two testes—synorchism.

The testicle in some cases, although not retained in the abdomen, may take up some abnormal position outside of that cavity. The most extraordinary, perhaps, is that in which the testicle occupies a position in the perineum. Williams* has published an analysis of twenty-five cases of this abnormality, of these seventeen were of the right testicle and eight of the left. Bryant† published a case in which he alludes to the fact, as possibly more than a mere coincidence, that the father of the child had had one of his testicles removed before marriage. The gland may remain in the inguinal canal, or it may be found lying over Poupart's ligament at the base of Scarpa's triangle. It may pass through the crural ring into the crural canal, and thence mount through the saphenous opening.

Compare with these facts the statements which have been made with regard to the lower attachments of the gubernaculum testis. These were:

1. Abdominal wall and extending into Scarpa's triangle.
2. To pubes and root of penis.
3. Several fibres pass to perineum, and tuberosity of ischium.
4. To the bottom of the scrotum.

The last attachment has, of course, to do with the normal descent of the organ into the scrotum ‡

* *British Medical Journal*, July 21, 1853, p. 110.

† *Guy's Hospital Reports*, vol. xiii., p. 419.

‡ Some writers attribute the mechanism of the descent of the testes to other causes than the contraction of the gubernaculum

Occasionally the scrotum is not well developed, and this may have something to do with the abnormal position of the testicle. This, however, is by no means a constant condition in these cases; thus Williams found in the twenty-five cases of testis in perineo in only six was there any mal-development of the scrotum observed, in all the others the scrotum was symmetrically developed. In the six cases it was observed that most of them were due to atrophy of the scrotum, from disease, and the condition was not a congenital one. Baudry* records a case of this kind in which the right half of the scrotum appeared to be absent; the raphé was seen on the right side, and from it the skin continued without fold or line of demarcation to the thigh; no sign of the dartos could be found to the right of the raphé, for while cold caused distinct contraction on the left side, none was observable on the right. This case of Baudry's is, however, unusual, and in most cases the scrotum is sufficiently well developed to permit of replacement of the testicle in its proper position. Mr. Annandale† performed the first successful operation of this kind. In his case, the left testicle was in the perineum. An interesting point in Mr. Annandale's case was, that during the operation a fibrous band attached to the bottom of the testis above, and to the tuberosity of the ischium below, appeared to correspond to one part of the gubernaculum, and had to be divided before the testicle could be freed. The gland was placed in its proper position and sutured to the bottom of the scrotum; the result was a successful one.

A very rare condition is that in which both testes have been retained within the abdomen; such a case is recorded by John Hunter and another by Curling.* Of the commoner varieties of retained testis we have conditions in which

testis. Dr. Bramman thinks that the descent is assisted by the rapid development of the viscera behind the gland, the final descent into the scrotum being probably due to the contraction of a layer of cellular tissue lying on the inner aspect of the gubernaculum connected below with the tissues of the scrotum.—*Brit. Med. Jour.*, 1884, vol. 2, p. 1288.

Mr. Bland Sutton regards the descent of the testicles as of the nature of a perpetuated hernia. He suggests that the first instance of the descent of a testicle was probably a true hernia of that body, and he places the phenomenon in the category of inherited pathological conditions.—*An Introduction to General Pathology*, p. 372.

* *Lancet*, Sept. 16, 1832, p. 454.

† *British Medical Journal*, Jan. 4, 1879, p. 7.

‡ Curling on the Testis, p. 106, Am. ed.