PLASTIC INDURATION OF THE PENIS

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Plastic induration of the penis is not frequently encountered, about 200 cases having been reported. Believing that this subject presents several problems of interest, we have surveyed all the available reports and have included brief descriptions of 6 additional cases which we have treated.

The disease was described in 1743 by La Peyronie and was classified in 1847 by Ricord (1) who, after excluding traumatic, inflammatory, and syphilitic forms, recognized plastic induration as a definite clinical entity. The lesion consists in a firm nodule or plaque appearing spontaneously in the penis, apparently independent of previous pathologic conditions. It may be single or multiple; in shape it is round to oval, with a smooth surface and regular, well defined margins. The plaque is usually 1 to 3 mm. in thickness and 1 to 2 cm. in length or width. The indurated areas usually occur dorsally in the median line or septum, or laterally in the corpora cavernosa.

There is practically no agreement as to the etiology. Ricord believed that the induration was situated in the corpora cavernosa and beneath the tunica albuginea and that it was a fibrosis resulting from phlebitis.

Tuffier (2) in 1885 showed that plastic induration always occurs on the surface of the fibrous sheath of the corpora cavernosa and not in the vascular structures. He noted the frequent association of the disease with gout and diabetes, and believed the probable origin to be in a degeneration of the elastic sheath. Zur Verth and Scheele (7) (1913) attributed the disease to changes in the elastic tissue and regarded arteriosclerosis as one of the essential factors.

In Bromberg's (10) opinion the fibrous deposits may occur in the sheath or in the trabecular bands within the corpora cavernosa, or both. In his cases the lesions were in the septum. He considers the induration as a fibrositis and of inflammatory origin. Gerster and Mandlebaum (8) found that up to 1907 only eleven specimens had been examined histologically: five had been obtained at operations and six from necropsies. Briefly, the histologic reports agree that the lesion is composed of dense connective tissue with a few small blood vessels. The vessels are atrophic (Galewski and Hübner, 6). The most recent study is that of Wiedhopf (11), who points out that the plaque is made up chiefly of collagenous and elastic fibers, with one or two centrally placed blood vessels which are surrounded by a thick adventitia. He agrees with Sachs that the induration originates in the adventitia of the small vessels.

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Patients seeking relief from this disease are from forty to seventy years of age, frequently in the early fifties. A few cases have been reported in young subjects. The process is insidious in onset, usually beginning as a small, hard nodule or plaque which slowly increases in size and then becomes stationary. The induration is symptomless at first and may be discovered by chance. The lesion is painless on palpation, or may be slightly tender. There is no urinary obstruction or interference with micturition. Erection is incomplete and rather painful, and the penis becomes angulated—the concavity of the curvature being toward the site of the lesion. If almost the entire thickness of the corpus is affected, the distal portion of the penis does not share in the erection. There is obstruction to ejaculation, and the semen escapes several minutes after erection has diminished (2). If the angulation is marked, coitus becomes impossible.

After the plastic induration is established, it tends to remain unchanged, and there is little probability of a spontaneous regression. Most authors agree that treatment is usually unsatisfactory. Of the 243 cases collected from the literature by zur Verth and Scheele (7), (all of which were not genuine cases of plastic induration), 13 were reported cured; 8 of these 13 were treated surgically. There are two objections, however, to surgery: (1) Excision is apt to produce a deforming scar. (2) Recurrences elsewhere in the penis are not uncommon. Medical treatment, whether local or constitutional, has rarely been effective. Antisyphilitic therapy, including potassium iodide, has no effect on these lesions.

Wiedhopf (11) used excision and postoperative x-ray therapy, and concluded that no noteworthy results have been obtained with medical, x-ray, or surgical treatment. Kretschmer and Fister (13) believe that x-ray and radium treatment usually fail. Fuhs (14), however, reports more encouraging results, having recently analyzed the results of 80 cases treated with radium. If the 27 patients who did not complete the treatment are discounted, cure was obtained in 43 per cent, improvement in 43 per cent, and only 14 per cent remained uninfluenced.

The following cases have been observed in the authors’ clinic:

**Case 1 (1907):** A young man, aged seventeen, had an indurated nodule, 0.5 by 2 cm., in the proximal third of the left corpus cavernosum. Erection produced pain and dorsal angulation of the penis. The lesion was subjected to treatment by radium plaque, with 0.3 mm. brass filter. The nodule disappeared after thirty days, and function was restored. The patient was seen about one year later and had had no further trouble. The skin under the site of the radium application was somewhat tanned but retained its elasticity.

**Case 2 (1913):** A middle-aged man had two areas of deep induration in the midportion of the penis, each approximately 0.5 cm. in diameter, one somewhat spherical and the other flat and oblong. Radiation was instituted by means of a 100 kv. transformer with the early type of Coolidge tube and 3 mm. aluminum filter. The flat plaque disappeared quite readily, but no apparent change occurred in the rounded nodule. The latter was then subjected to treatment with a 50 mg. radium tube, with 2 mm. brass filter, and soon showed an appreciable reduction. The penis became quite straight upon erection, and though coitus was not entirely satisfactory, the patient was satisfied with the results of treatment.
Case 3 (1919): A robust man, aged sixty, had two well-defined areas of induration in the left corpus cavernosum, close together and just back of the glans. There was some urinary irritation and a sharp left angulation upon erection, which was very painful. Both radium and x-rays were used, but while there was some improvement, the end-result was not wholly satisfactory. The patient later consulted a surgeon, who advised amputation.

Case 4 (1925): A young man, aged nineteen, had had a small hard nodule removed surgically several months previously. The wound healed and left an area of hard induration, which persisted and caused lateral angulation of the penis upon erection. The indurated area in the left side of the mid-portion of the penis was 2 cm. wide. Fifty milligrams of radium with 1 mm. brass and 2 mm. rubber filter was applied for three hours. Six weeks later there was marked improvement in the superficial part of the lesion. The radium was similarly applied for four hours, and the treatment repeated six weeks later for three hours, making a total of 500 mg. hours. The patient was under observation for seven months and the results were good.

Case 5 (1925): A man, aged seventy-five, had noticed, three months before, a small, firm nodule in the middle of the dorsum of the penis. The lesion was painless but gradually increased in size and caused dorsal angulation of the organ. The nodule, 2 cm. wide, was firmly fixed in the corpora cavernosa but was not adherent to the skin. Fifty milligrams of radium, with 1 mm. brass and 2 mm. rubber filter, was applied for four hours and the dose was repeated six weeks later; meanwhile one x-ray treatment was given to the ventral surface of the penis. The second radium treatment produced a marked reaction and some vesiculation of the skin. The nodule was greatly reduced in size in thirty days and had practically disappeared in three months.

In March 1928 the patient returned with an ulcer in the mid-dorsum of the penis. After five treatments with the Kromayer lamp, the ulcer healed. A second small ulcer was seen, in an area of telangiectasia at the site of the original lesion, in July 1930. This also healed after a treatment with the Kromayer lamp. The patient was well in December 1931, although some telangiectasia was still present.

Case 6 (1932): In a man of fifty-two years induration had begun nine months previously at the corona, extended backward, and remained at the base. There was one indurated plaque 2 by 1 by 0.5 cm. on each side of the proximal third of the penis. These symmetrically bilateral lesions were fixed in the deep tissues in the corpora cavernosa. Fifty milligrams of radium with 2 mm. gold, 2 mm. aluminum, and 0.5 cm. felt filter, was applied for three hours, and the treatment was repeated on the next three days—a total of 600 milligram hours being given. In one month the lesion was much thinner and was reduced to half its original size; this patient is still under treatment and further improvement is anticipated.

Summary

The etiology of plastic induration of the penis is unknown, and the pathological changes in the tissues are not clearly understood; further studies in the gross anatomy and histopathology are necessary. Clinically, there are two types: one involves the superficial tissues above the tunica albuginea and is usually single in the mid-line of the dorsum of the penis. The other is deep in the tissues and affects the septum, or the lateral portions of the corpora cavernosa, where it is frequently bilateral.

Type 1, the single superficial plaque, which does not deeply involve the tunica albuginea, can be treated surgically. In the deep, often multiple nodules in the corpora cavernosa, surgery is contraindicated; irradiation, preferably with radium, is the treatment of choice.

Since 1907 six patients with plastic induration of the penis have been treated with radium and x-ray in the authors' clinic. All symptoms were eradicated in three, there was improvement in two, and one
recent patient is definitely improved but is still under treatment. - In our limited experience irradiation is of distinct service and certainly offers more than any other remedial agency that has been tried so far.

BIBLIOGRAPHY

1. RICORD: Quoted by Tuffier.
6. GALEWSKI, AND HÜBNER: Quoted by zur Verth and Scheele.
15. SONNTAG: Quoted by Kretschmer and Fister.