when these precautions are taken, the gauze drain is left for 36 hours. At the end of that time the dressing is slightly raised at the upper end and the gauze drain is drawn out. The dressings are quickly replaced and the bandage is firmly re-applied. The skin sutures are removed on the ninth or tenth day and the patient gets up about the fourteenth. When the discharge of serum is copious the wound is dressed more frequently and every effort is made to do this anaerobically. The layer of gauze next the foil is not removed. Should the case have been operated on relatively late in the disease the probability is that the edges of the wound will not heal and that the wound will discharge pus in considerable quantity. The quickest way then is to open it right up and lightly fill it daily with iodoform gauze. In one such case (Case 4) swabbing with tincture of iodine seemed to aid the process of healing and was not painful, but it is difficult to be sure whether the healing was actually more rapid in consequence of the use of iodine.

The advantage of the method outlined above is that in the great number of cases valuable time is saved to the patient. It is probable that his illness will be one of a month or less instead of lasting three months or more. Case 3 is a good instance. In a hospital case also the saving of money would be considerable. These patients are greatly relieved in their minds when the swelling has been removed. They often think it is a rupture of some kind, and have been seen wearing trusses to press on the swelling. Although the whole question is difficult of solution and each case has to be taken on its merits the general impression left by a study of the five cases recorded here is that the best line of treatment to adopt in an average case is that which has just been outlined.

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THE TREATMENT OF PROSTATIC CONGESTION BY ELECTRICAL METHODS.¹

By JOSEPH S. BOLTON, M.D. EDIN., M.R.C.S. ENG.

THE functions of the prostate have not been fully worked out and the causes of its enlargement are but imperfectly understood. That the prostate belongs to the generative rather than to the urinary tract is evident from its embryology and comparative anatomy. Prostatic fluid is probably useful chiefly as an accessory and diluent of the secretion from the testicle. Testicular secretion is alkaline. Prostatic secretion is acid and may therefore be required for neutralisation. Removal of the seminal vesicles and prostate from white rats does not diminish the sexual passion but prevents entirely the fertilisation of the ova. In boyhood the prostate is chiefly muscular. At puberty glandular tissue develops. As old age advances some enlargement is very usual. John Hunter showed by experiment that castration of young animals prevented the development of the prostate and that in adult animals castration caused the prostate to atrophy and waste away. In certain animals, as the mole, the prostate enlarges during the rutting season of the year and shrinks again when this is past. Dogs are very subject to hypertrophy of the prostate and castration has often proved a satisfactory remedy. These facts led Dr. J. William White in 1893 to advocate castration of old men who were suffering from enlarged prostate. This operation, though occasionally successful, never became general. It was disliked by the patients and it was by no means devoid of danger.

Recent investigations with the x rays have shown that this agent has a remarkable effect upon the sexual apparatus, the spermatozoa being destroyed or rendered functionless by its action. It is natural, therefore, to ask the question—Will the x rays by their effect upon the testicles produce any amelioration of the condition of a patient suffering from enlarged prostate? Will the x rays produce an effect similar to castration, without any mutilation of the body or danger to the individual? Before this effect of the x rays upon the testicles had been demonstrated Dr. Moszkowicz of Vienna had been investigating the effects of the direct action of the x rays upon the prostate. He exposed the prostate through a cylindrical rectal speculum, the anus and adjoining parts being protected by a leaden mask. Three applications of 15 minutes' duration on alternate days were given.

The size of the prostate was much diminished and the patients were able to micturate without instrumental aid. Dr. Carabelli treated two patients by the x rays without any rectal tube and with equally good result. But he also protected the surrounding parts with a leaden mask. This protection is unnecessary and also unwise. For the effect of the x rays upon the testicles would certainly tend to increase the beneficial effect.

There are, however, other electrical methods which have been used with advantage in the treatment of enlarged and congested prostate. But before considering these it will be well to remind ourselves of the conditions with which we have to deal, and so far as we may their causes. The conditions are: (1) enlargement of the prostate; (2) congestion of the prostate; and (3) atony of the muscles of the bladder.

It is now generally recognised that enlargement of the prostate takes place in late middle life, but that this enlargement causes no symptoms for some years, not, indeed, until through advanced age the muscular fibre of the bladder loses its tone. Even then but little is noticed to attract attention till some irritant sets up congestion of the prostate, when any accidental overfilling of the bladder may bring about acute retention.

The causes of congestion of the prostate are numerous, coming as they do from the three systems with which it is so intimately connected—the alimentary, the urinary, and the sexual systems. There is a close relationship between piles and congested prostate, and both are frequently attributed to a chill. But the usual cause of congestion is undoubtedly an irritable condition of the urine owing to decomposition through detention behind an enlarged prostate. But sexual irritation must not be forgotten. A man who had no trouble till he reached the age of 75 years attributed his symptoms to the death of his wife which had occurred some months previously and his consequent failure to obtain sexual relief.

A patient presenting himself for treatment for prostatic trouble is usually found to be suffering from piles and congestion of all the parts about the anus. The large submucous veins of the prostatic urethra are engorged with blood and the prostate is like a sponge distended with fluid. The weakened bladder is unable to force the urine through the blocked urethra. The indications for treatment are the relief of local stasis and restoration of the circulation and the improvement in tone of the muscular fibres of the bladder. These indications are met by electrical applications. As electricity will relieve, and in many cases cure, chronic piles, so will it relieve prostatic congestion. Dr. Benham Snow of New York has had considerable experience in treating these cases by static electricity. He affirms that "in electricity we have a certain relief for all cases except those in which a malignant or tubercular process is present, or cases in which there is fluctuation from the presence of pus. The degree of success of the treatment depends upon the amount of hyperplasia or degeneration that has taken place in the structure of the gland. In the early stages of the affection a complete cure is uniform."

I have only two cases of my own to report but they tend to confirm the above conclusions. They were treated with high-frequency currents.

In April, 1906, I was called in by a man, aged 60 years, who was suffering from retention of urine. He had been troubled with enlarged prostate for two years and on several occasions had been obliged to be relieved by the catheter. I drew off his urine, which I found turbid and gritty but free from albumin. He benefited somewhat under urotropine and became able to pass his urine again. But the urine remained unhealthy and there were much scalding and irritation in passing it. The prostate was moderately enlarged and there was much congestion about the anus. He had very little comfort day or night owing to frequent calls to micturate. In May I decided to try the effect of electrical treatment upon him. I passed an electrode into his rectum and by means of the high-frequency current apparatus I electrified him for about ten minutes. This I repeated three times a week. At the early sittings I used a metal electrode but later I used a glass vacuum electrode. Within three weeks a great improvement was manifest, so that on June 15th I note, "he rises only once or twice in the night to pass water, and seldom has any discomfort." Still the urine continued turbid and gritty. On July 6th my note records: "Urine clear and acid." The treatment was interrupted at the end of July for three weeks, but as the symptoms showed some tendency to return it was resumed.

¹ The physiology and pathology of this article are taken from an excellent work by Dr. Deaver of Philadelphia on Enlargement of the Prostate.

and continued for several weeks longer. The result may almost be described as a symptomatic cure, for though his prostate is still large all his urgent symptoms have gone. He enjoys good health, performs his daily work in comfort, sleeps well at night, but still rises once at least to pass urine. Also there is occasionally a little delay in starting the stream of water.

The other case that I have to report is of quite a different type. The patient's present age is only 54 years and he has been troubled with his prostate for ten years. His profession, that of a minister of the Gospel, subjects him to considerable nervous exhaustion. It was on a Sunday night after preaching that he first became aware of something wrong. He spent a restless night, having to rise frequently to pass urine, which was of a cloudy character. This experience was repeated on many occasions, but it caused him little trouble for several years. About three years ago he went out as a missionary to the West Indies. For the first two years of his sojourn there he was remarkably well, but after this he began to suffer from prostatic cystitis and became so ill that he was obliged to return home. Indeed, his medical attendant sent him home for operation. When he came under my care he was thoroughly broken down in health and looked a perfect wreck, many years older than his actual age. He had almost constant trouble with his bladder, and the slightest nervous strain was sufficient to bring on an acute attack. He would first pass a quantity of clear urine, at frequent intervals; then the urine would become turbid, smaller in quantity, and cause scalding, and this would continue till he was completely worn out. I found on examination that his prostate was somewhat enlarged, hard below, softening gradually off higher up, and somewhat too sensitive to the finger in the rectum. He had piles, both internal and external, and a congested condition of the neighbouring parts. I passed a sound but failed to detect any stone. The passage of the instrument through the prostate caused great pain. Before coming under my care he had been taking urotropine and a buchu mixture. I advised him to try the effect of high-frequency currents. To this he agreed, and I commenced to treat him at the end of September of last year. The improvement in this case was most remarkable. He obtained relief after the first few sittings. His bladder symptoms began to yield at once and soon passed completely away. In a few weeks he showed signs of new life and vigour. He lost the haggard look and his whole aspect was completely changed. Early in December he was able to return to the West Indies.

The editor of *Advanced Therapeutics* in commenting upon this treatment says: "The employment of high potential electricity and mechanical vibration in the treatment of prostatitis will revolutionise the management of this unfortunate condition. The most rational treatment of this affection now is the employment of static currents, applied by placing a metal or glass electrode, either posteriorly in contact with the gland or by the employment of one through the urethra."

We in England are, perhaps, less sanguine than the Americans, but we have good reason to believe that this treatment—which is quite painless and not unpleasant in application and causes no shock, so that it can be borne by the aged and the feeble—will bring relief to many an old man whose life has become a miserable existence but who has not the strength or the courage to undergo a serious operation.

Nottingham.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

ROENTGEN RAYS IN THE TREATMENT OF ULCERATIVE BLEPHARITIS.

BY T. L. BUNTING, M.D. EDIN., F.R.S. EDIN.

Schiff and Freund some time ago reported some cases of blepharitis treated by Roentgen rays; since then little seems to have been recorded as to the action of the rays in this condition. The following notes on a very old-standing case may therefore be useful.

A man, aged 25 years, had an attack of measles 16 years ago. This was immediately followed by the blepharitis,

which attacked both eyes. The trouble had gradually got worse and he had had frequent attacks of conjunctivitis and keratitis in both eyes. He had been under treatment many times in the course of the disease, and for the last 18 months before coming to me he had been constantly treated at the Newcastle Eye Infirmary. Mr. A. W. Messer, assistant surgeon to the infirmary, who sent the case to me, informs me that all ordinary methods of treatment had been tried without benefit. The patient came to me on July 6th, 1906. The whole of the four lid margins were then involved, and the ulcerative process covered also both the inner and outer surfaces of both lower lids. The lids were all much swollen and they sometimes bled on being touched. There were no eye-lashes and no scabs, but a constant watery discharge. Conjunctivitis and keratitis were present in both eyes and there was some ulceration of the left cornea. There was constant and often severe pain.

During treatment the eyes were kept closed to protect the conjunctivæ from the rays, and the healthy skin was covered by a lead shield with a horizontal slit just large enough to expose the diseased surfaces. The tubes used varied in spark gap from $3\frac{1}{2}$ to 5 inches and gave rays of 3—7 Benoist. Exposures of from eight to ten minutes were given about every five days, each eye being treated separately. After two exposures the pain disappeared and never returned. Epithelium began to form on the right lids after seven, and on the left after nine, exposures, and the margins and outer surfaces then healed very rapidly. In subsequent treatment I drew down the lower lids with sticking-plaster so as to expose their inner surfaces, of which the greater part healed as rapidly as the outer surfaces. But I have been unable to obtain healing of a narrow strip in the depth of the recess where the lids meet the eyeball. In spite of all that one can do by everting the lids the rays can only fall on this strip obliquely, and it seems impossible to give a sufficient dose to it without giving so much as to harm the surrounding parts. The patient has now had 24 exposures to each eye, of which the later ones have been devoted to the attempt to heal this narrow strip.

For all practical purposes the patient is now cured. The external appearance is quite normal except for the absence of lashes. There is no pain and the inflammation of the conjunctiva and cornea has disappeared, so that the patient, who has had to spend the greater part of each previous winter indoors with his eyes shaded, has this winter gone about freely.

Newcastle-on-Tyne.

A CASE OF TURPENTINE POISONING

BY GUY H. COLTART, M.B. LOND., M.R.C.S. ENG.,
L.R.C.P. LOND.

AT this season of "spring cleaning" the following case may be of interest:—

A girl, aged eight years, after having been exposed to the fumes from newly painted woodwork for nearly a fortnight, was seized on March 10th last with headache, vomiting, and swelling of the left tonsil, causing pain and difficulty in swallowing. There was also pyrexia, her evening temperature being 102.5°F . The next day there was pronounced hæmaturia; the urine was bright red in colour and contained albumin. Her temperature was 99° ; the bowels had acted and there was no further vomiting; the tongue was furred. On the 12th the urine was nearly black, having the appearance of stout, and contained nearly one-third albumin; both tonsils were enlarged. Her temperature was 102.5° . In the afternoon she was removed to a nursing home, where her temperature was found to be 103.6° on arrival. On the 13th the patient's tongue was cleaner and she had less difficulty in swallowing, but the tonsils were still swollen. The temperature had fallen to 101.5° . The urine was still very dark and loaded with albumin. From the 14th to the 19th there was a steady improvement, the temperature gradually fell to normal, the albuminuria rapidly diminished, and all swelling of the tonsils disappeared. The patient was removed home on the 19th. The urine still contained a trace of albumin, but in every other respect she was quite well. The treatment consisted of rest in bed in a warm room, milk diet, saline aperients every morning, and a mild diaphoretic mixture. There were four other people living in the house, none of whom was affected in any way by the smell of paint.

Fulham-road, S.W.