take the most complete antiseptic precautions, very troublesome supuration may occur even after the simple operation in question.

Thirdly, this case furnishes one more instance of the uselessness of the suture without the injection; though it is but fair to say that this was a direct hernia, with no oblique valvular canal such as would be favourable to suturing.

Fourthly, that, as might have been expected, the position usual after all operations for radical cure of hernia is exceedingly bad for patients exposed to the causes of lung-affections.

Having, by my open operations of injection, become sufficiently familiar with the parts, I wished to try subcutaneous injections, and was soon fortunate enough to get for a patient an able and observant surgeon who had himself been already operated on by as good a surgeon as any in these islands, but unsuccessfully, the form of operation having been an attempt to obliterate the canal with a gold wire passed subcutaneously, and left *in situ*. This was a right inguinal hernia with a short canal, but not direct.

My procedure was as follows. First, I requested my patient to get a brand-new morphia injection syringe, with a long, stout needle, and also a small quantity of absolute alcohol in a stoppered bottle. Both these were kept entirely for his own use, the former always remaining in his possession. Every other day, I injected five drops of absolute alcohol into the inguinal canal. The needle was used in the following manner.

Invaginating the scrotum, I passed my left forefinger up the inguinal canal as far as the internal ring, the patient lying supine. With my right hand I now inserted the needle, making it pierce the skin external to the middle of Poupart's ligament, that is, nearer the anterior superior spine of the ilium, and passed the needle-point from without inwards and backwards, till, going through the external oblique aponeurosis, it touched my forefinger-tip lying in the inguinal canal. The point of the needle was now, of course, itself

in the canal, and directed downwards and inwards, in fact, nearly in the axis of the canal. The next step was to take my finger out of the canal, leaving the needle-point in it. My own sight and the patient's own feelings used to assure us that the hernia remained reduced; but, even had it slipped down, it could not have been wounded by the needle lying point downwards and inwards, in the manner I have described. The injection was now made, and the needle withdrawn; a smart burning sensation was felt for half a minute (it was timed accurately by a watch), and then disappeared entirely, as though the alcohol had a secondary anæsthetic action.

What were the results of these injections? Either the second or third injection produced a thickening in the canal about the size of a small Spanish nut; and a few more injections, or, rather, the last of them, produced a swelling as big as a plover's egg, or bigger; it completely blocked up the canal, and was decidedly tender, as well as somewhat painful for a day or two.

Both my patient and myself were now hopeful of success; but,

alas! as the swelling subsided, it became probable that it was in the cord, and not in the loose tissues of the canal, because it gradually descended in the canal, till it was all at the external ring; it is needless to say that a swelling there will not cure an oblique hernia.

The patient leaving town, treatment was now discontinued for two months, at the end of which time he returned, stating that his hernia did not come down so readily or so frequently as before; and that he was convinced that we had only to get the injection higher up, namely, to the internal ring, in order to obtain a cure. I was entirely of his opinion. He could only stay in town a very short time on this occasion, so I resolved, with his consent, to inject a more powerful irritant this time. Accordingly, I put in five drops of fresh glycerine of tannic acid; the reaction was tremendous; an immense swelling filled the canal, and descended out of it along the cord towards the scrotum. There was a good deal of pain and fever for a few days, and I kept him in bed; he had been walking about during the preceding treatment; but, again, the injection was too much in the coverings of the cord, so that, as the swelling subsided, the weight of the testicle dragged its remains down towards the external ring. My patient, who is in the army, had now to leave London on duty.

Now, I have no doubt in my own mind that I placed the needle point as high up the canal as the internal ring; and while my finger remained in the canal the cord was guarded effectually enough. But I was obliged to withdraw my finger before injecting, or, as actually happened in the only instance in which I did not, the injection would have gone into the tissues of the invaginated scrotum. During the operation, the tendency to retraction of the cord and testicle was marked, and doubtless the cord, so to speak, impaled itself on the needle as soon as my finger was withdrawn from protecting it. By the cord, I mean its coverings rather than the vas deferens, etc.

It is plain to me that there are two ways in which this simple operation can be perfected: 1. The needle can be provided with a protecting cannula, which should be slipped over its point before the finger leaves the canal. 2. The testicle should be dragged downwards as far as possible while the injection is being given.

There are very serious objections to the latter plan, and the former is the one I shall try at the first opportunity. I am sorry that the necessary departure of my patient prevented its being tried on him. His intelligence, his professional training, and his thorough understanding of his own case greatly increased the value of it.

I hope it will be borne in mind, in considering my paper, that what I am in search of is not an effective radical cure for hernia, but a safe one. I mean one so safe that any surgeon would as readily submit to it as to the opening of an alveolar abscess. Further, what is wanted is not an operation which is only safe in the hands of a very select few men of exceptional skill, knowledge, and experience, but one which can be satisfactorily done by any intelligent and careful surgeon who will take the pains to learn it, and to study the anatomy and pathology of the affection he proposes to treat.

I will take this opportunity of stating that I have this week examined the first patient on whom I operated for the radical cure of hernia by injection. He is a stout, middle-aged gentleman, who used to be greatly troubled by a double inguinal hernia, which came down even as he lay in bed. The result of the operation is in this case perfect. During the two years which have now elapsed, he has neither seen nor felt anything of either rupture; except in the first month of convalescence, he has worn no truss, and there is no impulse. This case was operated on at the Fitzroy Home Hospital, in the presence of Messrs. R. Wharry, S. Benton, and J. Mills.

CLAY-MODELLING OF THE LIVING PROSTATE AS A MEANS OF OBTAINING A PERMANENT RECORD OF PROGRESSIVE DISEASE.¹

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It is certainly remarkable that whilst our knowledge of the etiology and diagnosis of disease has advanced during the last twenty years by rapid strides, our insight into the functional disturbances and organic diseases of the prostate gland has lagged far behind. Still more remarkable is it that although the gland is within the reach of our finger, yet our macroscopical knowledge of its living condition has not kept pace with the microscopical information we have derived from *post-mortem* investigation of its structure. Our conceptions of the living normal gland are mainly taken from our knowledge of it in its

¹ Read at the Berlin Surgical Congress, April, 1887.

dissected form—a condition greatly different. We have absolutely no true standard of the normal size or shape with which to compare the pathological deviation. It is not, I believe, known that, as regards its rectal surface, the gland is frequently undergoing change of shape. This change may be dependent on a variety of causes, namely, sleep, wakefulness, position of body, and even upon coition. Again, if we consider its pathological state—that is, those conditions which induce us to examine it *per rectum*—we are forced to confess that our diagnosis of its disease frequently requires propping up by other considerations than the mere feel of its surface and surroundings.

Doubtless the cause for this discrepancy is the fact that examination of the prostate is irksome to the practitioner and generally painful to the patient; and when necessity demands its performance, it is only too often perfunctorily or cursorily carried out. Another reason for this deficiency of knowledge is that tactile sensibility and appreciation of size and shape differ greatly in different observers. A tubercular deposit which one surgeon will pronounce to be bean-sized, will be described by another as being equal to a walnut.

The lack of a standard of comparison led me to investigate the prostates of many men in full health, and I was struck with the varieties I encountered. The knowledge I have derived I hope shortly to publish, under the title of *The Normal Prostate, and how its Shape is affected by Sleep, Posture, and Coition*. The object, however, of this paper is to lay before the profession a method which I adopted to record the varieties I have met with in health and disease.

At first I was in the habit of using diagrams to record the various prostates, and this, indeed, is the quickest and the most practical method; but it is inaccurate, for shading does not sufficiently express the elevations and depressions.

I then conceived an instrument for gauging the breadth of the gland. It consisted of a strip of metal, which rotated round a pivot situated on the ball of the right thumb. One end of the strip passed over a dial, and the other end was affixed to and moved with the right index finger. The index being inserted into the rectum, its lateral movements, and therefore the breadth of the prostate, could be marked on the dial. This proved ineffectual to record the antero-posterior diameter, or the varieties of surface-inequalities; so that I finally began to make clay models, and it is this method which is here described.

Figs. 1 and 2 are drawings of models of cases of carcinoma of the prostate, which I have selected out of nine cases of that disease, which came under my immediate notice during last year (1886).

Fig. 1 is from a man, aged 53, who came under my care in private

FIG. 1.

FIG. 2.

practice with symptoms of obstruction due to enlarged prostate. I performed colotomy with relief; the entire right lobe is converted into a fungating encephaloid mass; the left lobe is free from disease.

Fig. 2 is from a man, aged 63, who also came under my care with similar symptoms, and on whom I also performed colotomy with relief. The entire left lobe is involved; the right is free. After a few months' time, if the patient lives, another model will be taken to show the growth of the tumour.

The *modus operandi* is as follows: I usually have the bowels well

cleared out, and if the patient is very sensitive I inject a couple of drachms of a 20 per cent. solution of cocaine into the rectum. A lump of sculptor's clay roughly fashioned into the shape of a prostate and the back of the bladder, lies under the left hand while the right index finger explores the prostate and a general idea is obtained of its form. The right index is now withdrawn, and both hands roughly model the clay to correspond a little with what has just been felt. The right index is again introduced, and the right lobe is first taken, and little by little its form is thoroughly investigated; the same is done with the left, and the model is now correspondingly altered with both hands. Once again the right index finger is introduced, and is passed over the prostate piece by piece, and the left index is correspondingly passed over the rough model. The "living and the dead clay" are thus compared, and it is curious how well and how accurately the two forefingers work together if the movements be simultaneous. Any mistake, either of elevation or depression, is immediately recognised and altered with ease, a little oil on the surface of the clay model being of great use in making the moulding easier. The model is now put away to dry, after being marked with the name and number of the case in a note-book. If the case is a progressive one, another model can be taken in a month or two. For museum purposes it may be faced with plaster-of-Paris.

I submit this method for criticism, for I believe it to be a very simple and reliable means of estimating the due shape and proportions of the prostate in health and disease, as well as to allow of a permanent record being kept of the macroscopical changes which may ensue in the course of a prostatic complaint.

A CASE OF CESOPHAGOTOMY FOR THE REMOVAL FROM THE THORACIC CAVITY OF A HALFPENNY, WHICH HAD BEEN SWALLOWED THREE YEARS AND A QUARTER PREVIOUSLY: COMPLETE RECOVERY.

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EARLY in March, 1885, I was requested by my colleague, Dr. Suckling, to see a child in one of his wards at the Queen's Hospital. The consultation was with the view to an operation for the extraction of a halfpenny which the child was reported to have swallowed some years previously. Dr. Suckling believed that this had never entered the stomach, but that it had become impacted somewhere below the top of the sternum, and had thus been the cause of the very grave symptoms from which the child had ever since suffered. The patient, a boy 7 years of age, had been taken to the out-patient department at the Children's Hospital, to be treated for "asthma" or "consumption," and the following history was given.

At Christmas, 1881, that is, three years and a quarter before, when less than 4 years of age, his mother saw him swallow a halfpenny he was playing with, and in his efforts to get it down she noticed that he struggled a great deal. After a short fit of choking he was violently sick, and for a week or more he could not swallow anything, owing to the cough and sickness which all attempts produced. After this period he seems to have so far improved as to be able to swallow a little, but regurgitation of a portion was even then perceptible. No attempt at exploration or extraction was made at this or any other period. Subsequently, when he got very ill, she consulted several medical men, but as she did not always inform them of this incident, treatment was generally directed to the progressive emaciation and chest-symptoms which the child exhibited.

March 20th. At the consultation to-day he looked like a little skeleton, and weighed only 25½ lbs. His manner of swallowing was typical of oesophageal obstruction. By long experience he had become very adroit in his efforts, proceeding in the most cautious manner to gulp down liquids in single mouthfuls, but with terrible avidity. With all his care, however, the larger portion regurgitated after an interval of from one to three or four minutes, and commonly mixed with much frothy and purulent mucus. His voice was hoarse and breathing stridulous. Dr. Suckling found impaired resonance and deficient respiratory sounds all over the right lung, and inferred that the right bronchus was obstructed, but he was not able to establish the existence of any fistulous communication between the two tubes.

On using the oesophageal sound I at once detected an obstruction behind the manubrium sterni. There was no feeling of metallic contact, and nothing to indicate the nature, whether stricture or foreign