following January there were two cases of similar nature among the town population at a considerable distance from the dockyard. The Naval Hospital had no cases of erysipelas in its wards, nor from outside, and the only epidemic disease of the year was measles. The course of the disorder was alarming, and its results were terrible, so that the dockyard men fancied they had the Egyptian plague among them; but not a case of infection occurred in the families of the sick. The origin of the epidemic has been always a puzzle, and its spread may possibly have been through agencies within the dockyard surgery, where the previous treatment and dressings had been given. Its mortality may have been assignable to the treatment, which was at first by repeated venesections, and calomel and antimony with saline purgatives; for, as soon as that was changed for early and free incisions with stimulants, the results changed, and the epidemic shortly came to an end. A more remarkable epidemic than this has rarely been described, and by itself it stands worthy of separate full consideration as a local epidemic confined to the worst conceivable form of cutaneo-cellulitis, with septicæmia or pyæmia developed in most of its cases, and with gangrene in several of them.

It seems to me to be impossible to arrive at any other conclusion than that the results of treatment have been altered in a marvellous degree since the adoption of free incisions before suppuration has commenced, and wherever abscesses shall have formed; and since the complete revolution in medical treatment from the older practice of copious venesections, repeated so long as the blood showed buffiness, or until it could be no longer borne, by cathartics and other depressing agents, to the more modern line, by the assiduous use of strong nutrients and the free use of vinous and alcoholic stimulants, accompanying free incisions.

The summary of these observations is as follows.

Erysipelas of epidemic type is more severe and more fatal than when of simple sporadic type; and that it may then be aggravated into a series of cases, of uniform "cutaneo-cellular" form, without milder erythematic cases, as happened at Devonport Dockyard in 1824, when a series of slight injuries were attended by fatal results; and such conditions may be of a very circumscribed local character.

When epidemic, it has increase of infectiousness.

Within a narrow area, where there are many idiopathic cases under treatment, it does not necessarily become traumatic, under due precautions.

When epidemic, it attacks younger ages than it is accustomed to do when simply sporadic.

It is more amenable to treatment in well aired sunlit apartments than in the reverse.

Its treatment on the stimulant plan is by far more successful in its results, than by the opposite plan of bloodletting and other depressing agencies.

And lastly, the epidemic type possesses some occult correlation with the epidemic exanthems, more particularly scarlet fever and measles. This proposition, as I believe, would be more strongly sustained by a wider investigation into the more general diffusion of all these diseases that occurred successively throughout the whole of the southern provinces of England, as shown in the navy and army returns for the period, the particulars of which the limit of time allowed forbids my entering on on this occasion.

TWO CASES OF SUCCESSFUL OPERATION FOR EXTROPHY OF THE BLADDER BY A NEW METHOD.

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My first patient, a weakly boy of eight years, was sent from Wales to the Bristol Royal Infirmary with a view to operation. The condition was a moderately severe one of combined extrophy of the bladder and epispadias, and differed in no important particulars from ordinary specimens of this deformity. The testes had just escaped from the abdominal cavity, and could be felt under the skin at the level of Poupart's ligament. The hernial tumour bulged considerably when the patient was in the erect posture, but was only slightly elevated above the surrounding skin when he lay on his back. The mucous membrane was red and irritable, bleeding freely on the slightest touch, and secreted considerable quantities of mucus and pus, which clung tenaciously to the surrounding parts. There was some soreness of the skin over which the urine dribbled. The malformed penis was smaller even than usual.

Preparatory treatment was adopted for a fortnight before operation. The patient was kept lying on his back in hopes that, by removing the weight of the abdominal contents, the tumour might diminish in size.

The mucous membrane was covered with oiled silk coated with dextrine, over which was kept a double layer of boracic lint. The atmospheric air and other sources of irritation were thus excluded, and the deposition of phosphates, by prevention of evaporation, was much diminished. Bland and demulcent drinks were freely administered. Under this treatment, the surface of the entrovverted mucous membrane soon became less red and angry-looking; and latterly, over its upper half, as low down as the orifice of the ureters, it became covered with true epidermis almost as white as that of the surrounding skin. The mucopurulent discharges diminished considerably in amount, and the excoriations on the contiguous skin entirely disappeared.

Under conditions more promising than on admission, he was operated upon under chloroform on April 25th, 1879. A flap, in shape like the wooden portion of a fire-bellows, its base being next the top of the tumour, was marked out on the abdominal wall. This, turned over, was intended to cover both the extrovverted mucous membrane and the upper surface of the penis. In area, it was considerably larger than the surfaces to be covered. Before dissecting this flap from the abdominal wall, its epidermic edge was bevelled off with a sharp razor. Then two groin flaps were raised. The outer edge of each was nearly semicircular; the inner edge above corresponded with the lower half of the abdominal flap, below it skirted the margin of the abdominal opening. The lowest portions of the lateral flaps were dissected from the sides of the penis, as far forwards as the rudimentary prepuce, and involved a piece of the scrotum as well. At the level of the glans penis two small incisions were carried partly round each side of the organ. Finally, the pendulous prepuce was perforated, with the view of drawing it over the glans penis and penile portion of the abdominal flap. Throughout the dissection, I was exceedingly careful not to lay hold of the flaps with my fingers nor to compress them with sponges. Tenacula and tenaculum-forceps took the place of fingers, and warm boracic lotion was used with the sponges. The flaps were then adjusted. Three silver wire sutures with needles at both ends were inserted at each lateral margin of the skin surrounding the tumour, and carried through the over-turned abdominal flap. These sutures were afterwards made to traverse the groin-flaps, and twisted over two gum-elastic bougies. In this way, not only was the abdominal flap kept adherent to the pared margin of skin abutting on the tumour, but the groin-flaps were firmly secured over both. The scraping with a razor of the epidermis at the edge of the abdominal flap was intended to facilitate adhesion with the denuded parts surrounding the tumour. The bougies over which the silver sutures were fixed were placed longitudinally along each side of the abdominal opening, so as to compress the flaps in the direction of, and not across, their blood-supply. Before completing the above part of the operation, I had stitched, with fine catgut sutures, the edges of the abdominal flap to the ring of skin left around the opening in the abdominal wall, and the portion intended to cover the penis to the mucous membrane on the upper surface of that organ. Then the loose skin got from the sides of the penis and the scrotum was stretched over the underlying penile flap, and brought together in the centre with alternating sutures of silver wire and horsehair. The groin-flaps were brought together with three harelip pins, meeting over the middle of the abdominal flap, and overlapping it for some distance all round. Last of all, the hood of prepuce was raised over the glans penis, surrounding it like a collar; and was stitched both to the penile end of the abdominal flap and to the extremities of the pieces of skin which were raised from the sides of the penis. The denuded portions were covered over as much as possible by drawing the integument together with harelip pins, a semilunar area about one-third of an inch in breadth being left uncovered at the top. The new bladder was washed out with warm boracic acid lotion, and a piece of India-rubber tubing was left to carry off the urine. The wounds were dressed with boracic ointment spread on thin gauze. The patient was placed in a sitting posture in bed, his knees being bent on the abdomen, and secured in that position by means of a bandage carried round his neck.

The subsequent history of the case is uneventful. With the exception of a portion of the preputial collar, which sloughed, every part of the transplanted skin survived and healed without the appearance of a drop of pus. In the uncovered portion, the granulations were built up without suppuration—a frequent enough occurrence under the application of boracic acid. In three days, all the pins were removed; and in seven days, all the sutures. A month after operation, every part was covered with epithelium. On the second day, some urine oozed from below the flaps on the right side; this oozing ceased in a few hours; and, with this exception, all the urine flowed through the tube.

The result may be described as a complete cure of the extrophy and a partial cure of the epispadias. The opening in the penis is large enough to admit a No. 5 catheter. As yet, there is no power of retention. No urine may flow for a quarter of an hour or so, if the patient

be at rest; but a cough or a contraction of the abdominal muscles makes it flow. The boy was sent out wearing an urinal, which kept him perfectly dry.

My second patient, an undergrown badly nourished boy aged fourteen, was sent me by Mr. Ormerod of Westbury, near Bristol. In him, the deformity was of the most aggravated type; and, to make matters worse, nearly the whole of the skin of the abdomen, from which part of the flaps had to be taken, was replaced by dense cicatricial tissue, the effects of a burn received three years previously. The hernial tumour was as large as a goose's egg, and protruded so much as to entirely conceal the rudimentary penis. Its surface was covered with granulations rather than mucous membrane; the secretion of muco-pus was excessive, and the slightest touch caused great pain and excited free bleeding. The boy was scarcely ever free from pain; but, towards night, his sufferings were so great as to prevent sleep and make him cry out. Excoriations were abundant all round the tumour, and the skin was in some places enormously thickened. The boy walked about in bent posture, with petticoats suspended from the waist, so as to avoid contact with the tumour.

Preparatory treatment, the same as in the previous case, was adopted, but without benefit. All sorts of astringent and sedative applications were made to the mucous membrane, but the excessive secretion of muco-pus and abundant deposit of phosphates continued undiminished. The pain increased rather than abated.

When the patient was put under chloroform, the under surface of the tumour, which could not be seen before, was found to be covered with long pendulous villi, which bled freely on being handled. The whole of the granulating surface was swabbed with a strong solution of alum. Almost the same operation was performed as in the previous case. Part of the abdominal flap was formed of cicatricial tissue. The portion intended to cover the penis was pared off one side of the abdominal flap, and twisted round. No hare-lip pins were used; carbolised silk sutures were substituted. The silver sutures uniting the two thicknesses of flaps to the skin at the edge of the abdominal ring were twisted over two pieces of soft India-rubber tubing. The soft tubing adapted itself accurately to the surface, exerted gentle and equable compression on the underlying transplanted tissues, and readily yielded to the inflammatory swelling which afterwards came on. The tube left in the artificial bladder was of large dimensions, so as to carry off the abundant muco-purulent discharge, which was expected to give some trouble.

On the third day, all the parts had united by first intention, and not a particle of necrosis was seen. On the fourth night after operation, the tubing which carried off the urine, and which had been frequently removed and cleansed to prevent its becoming blocked with the abundant muco-purulent secretion, was not attended to as usual. The result was, that about twelve hours' secretion of urine was bottled up in the new bladder. It was unable, however, to force apart any of the newly united incisions, but escaped by the root of the penis into the scrotum, which was found greatly swollen at the visit next morning. The scrotum was freely incised, and slowly regained its normal dimensions. But a second attack of inflammation, more severe than that directly resulting from the operation, was set up in the transplanted tissues. They bore the strain remarkably well, however, and soon regained their previous healthy appearance. Suppuration set in at the top of one of the groin-flaps, and soon healed up; but part of the union between the transplanted prepuce and penile covering gave way, and a fistula was established which had to be closed by subsequent operation. From the impossibility of bringing the cicatricial skin over the denuded portions, this case was much longer in recovery than the first.

The result in this case may be described as a complete cure both of the extrophy and of the epispadias. Urine can be retained for half an hour at a time; and, as contraction takes place, still further improvement may be looked for.

The better result in the second case, under less favourable circumstances, I attribute to some lessons learnt from the first operation. These, and the general principles on which I proceeded, I shall now shortly describe. It will have been observed that I have made free use of several methods of operating, rather than invented an entirely new plan.

1. I observed a minute, perhaps excessive, care that the flaps should on no account be lifted between the fingers. Seeing that the vitality of the transplanted tissues hangs on a very slender thread, the smallest area of thrombosis from pressure might be sufficient to cause necrosis, and bring on mortification in outlying portions as well. The flaps were tenderly lifted, not dragged, with tenaculum and sharp-pointed forceps; and were lightly wiped, not pressed, with the sponge. To avoid vascular irritation, the lotion was heated to the temperature of the body.

2. The flaps were made larger than is usually recommended. This

was done to avoid the necessity of stretching, as well as to give a considerable margin for the lateral flaps to overlap the median flap. The vitality of transplanted tissue depends chiefly on its distance from vascular supply; and, if tension be avoided and a broad base left, there is no reason why the breadth of the flap should be curtailed. The advantage of the upper portions overlapping the lower, thus offering a broader and firmer barrier to the urine and affording more opportunities for union with the denuded portions, is self-evident.

3. I was careful that the necessary compression for securing the flaps should be in the line of, and not across, the direction of blood-supply. The two quilled sutures were inserted longitudinally, and the hare-lip pins in the groin-flaps were not inserted into the underlying abdominal flap. The plan (Professor Wood's) of including both thicknesses of the transplanted tissue, involving as it does a doubly acute flexure, and consequently a greater and more extensive strain on the tissues, cannot, I think, be otherwise than detrimental. The use of the unbending hare-lip pin in cases of this sort, even when carried through only one thickness of tissue, I believe to be so dangerous that I dispensed with it altogether in my second case.

4. The under flap had its edge pared in such a manner that, when it was turned over, epithelium lay in contact with epithelium, and areolar tissue with areolar tissue. Its margins were accurately stitched to the edge of the abdominal ring, as well as to the mucous membrane left to form the floor of the urethra. In this way, not only is retraction, which must take place if the flap be left free, prevented; but the escape of urine is more completely guarded against. When once the urine escapes into the areolar tissue between the flaps and the abdominal wall, it is very difficult to prevent the formation of a sinus. The permanent securing of skin next to mucous membrane goes far to prevent this.

5. The bringing down of the penile flap from the abdomen gives an unity and completeness to the operation, and affords a possibility of confining the track of the urine, which is not otherwise attainable. The weak point of the form of operation usually adopted is the part above the penis; and the penile flap, continuous with the portion immediately overlying the tumour, is a powerful stay and support against a hernial protrusion of the mucous membrane. It may be objected, that to bring down a flap all the way from the abdomen to the penis, and to endeavour to cure the epispadias at the same time as the ectropia, is to attempt too much at one operation. Still, even if necrosis take place, nothing is lost, as compared with other operations; and, if the flap survive, an immense advantage is gained. In these cases, the result proved that I was justified in the attempt.

6. The making one lateral flap of the groin, scrotal, and penile integument covers in and supports the underlying flap so completely and exactly, that no opportunity is afforded for the escape of urine. The lax scrotal skin occurs at the very part where possibility of being stretched is most wanted. If the groin-flaps stop short at the root of the penis, and no penile flap be made, a triangular opening is left, through which the mucous membrane is likely to protrude.

7. Not the least important peculiarity in this operation is the manner in which the flaps were secured to each other and to the margin of the abdominal opening. This was effected, as stated above, by fixing into the skin left around the opening through which the mucous membrane protruded three loops of silver wire on each side; by carrying both ends of each loop, first through the edge of the abdominal flap, and then through the middle of each groin-flap; and by twisting the free ends over two pieces of soft tubing, which lay parallel to each other about an inch on each side of the line where the groin-flaps met. To get the parts fixed in exact apposition by this means is undoubtedly somewhat difficult; but it is worth the trouble. Between the firm skin around the abdominal opening and the soft elastic tubing, the two flaps are gently and continuously compressed against each other and the denuded areas. The compression is exerted in the line of, and not across, the direction of blood-supply. It is made at those points where primary union is of most importance. The under flap cannot retract; and, in the necessary movements of the abdominal muscles, the denuded areas are kept in permanent and exact apposition. Hare-lip pins are not needed in the groin-flaps, because the underlying layer is so fixed as to resist abdominal tension. On these grounds, I regard the tubing sutures around the margin of the abdominal opening as one of the most important contributions to the success of the operation.

Such are the leading principles on which these operations were carried out. Many practical minutiae in the nursing of the flaps and the general management of such cases, which would be observed by every scientific surgeon, it would be superfluous to mention. The careful observance of every detail prompted by scientific knowledge or practical experience, always indispensable in sound surgery, is peculiarly requisite in operations for ectropia vesicæ.