condition. The lesions in the area where the eruption was confluent showed some tendency to ulcerate, but ultimately complete healing took place and the patient was discharged on July 30th without any complications having occurred. There also appeared to be some diminution in the size of the enlarged glands in the axillae at the time of her discharge.

As far as I have been able to ascertain from a fairly extensive investigation of the literature, this patient appears to be the oldest one in whom varicella has occurred, though doubtless older persons have been attacked without their histories having been reported.

BIBLIOGRAPHY

- De Decker: *Bull. Méd. de Katanga*, 1932, ix, 10.
 Gee, S. J.: *Reynold's System of Medicine*, 1866, i, 523.
 Von Genser, T.: *Wien. med. Woch.*, 1903, liii, 124.
 Gregory, G.: *Lectures on the Eruptive Fevers*, 1843, p. 227.
 Von Jürgensen, T.: *Notlingel's Encyc. Pract. Med.*, Varicella, 1902.
 MacCombie, J.: *Allbutt and Rolleston's System of Medicine*, 1906, ii, Pt. 1, p. 475.
 Moore, J.: *Textbook of Eruptive and Continued Fevers*, 1892, p. 125.
 Rolleston, J. D.: *Acute Infectious Diseases*, 1929, pp. 346, 357.
 Schamberg, J. F., and Kolmer, J.: *Acute Infectious Diseases*, 1928, p. 301.
 Thomas, L.: *Ziemssen's Cyclop. Pract. Med.*, 1875, ii, 8.
 Wanklyn, W. M.: *British Medical Journal*, 1902, ii, 47.

THE DESIGN OF DIRECT PEDICLE FLAPS

BY

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The purpose of this communication is to describe a simple technique for the accurate design and transference of a full-thickness pedicled flap from one part of a patient to another without danger to the blood supply. The use of the direct flap method instead of the tube pedicle type of graft is to be preferred wherever possible, because it reduces the number of essential operations to two, with an interval of two to three weeks, thus shortening the period of stay in hospital very considerably.

The principle of the method is to imagine the operation completed and to reverse the steps of the procedure of transferring the flap, using as a model an exact jaconet or linen pattern of the defect to be covered. It is thus possible to arrive with speed and accuracy at the correct topographical origin of the flap to be cut from the donor area. Suppose that there is a rectangular area over the posterior surface of the elbow-joint to be covered by a direct flap taken from the side of the abdomen. After the usual pre-operative preparation of the patient and sterilization of the pattern, the elbow is flexed and approximated to the side, bringing the defect as close as possible to the donor area. The pattern is now fitted accurately to the defect. The assistant holds the lateral edge carefully in position while the medial edge is turned over on to the abdominal skin and held by the surgeon in the position which it naturally takes, so as to leave the intervening portion comfortably slack. The lateral edge of the pattern is then released and the arm moved away from the side, while the surgeon smooths the remainder of the pattern over the abdomen. The skin outlined by the pattern is marked by scratching, and dissected up to form a flap, the attached side of the flap on the abdomen corresponding to the edge of the pattern first shifted to the body. It is necessary in some situations to allow enough extra at the base of the pedicle to ensure a sufficiently large area of the flap being sutured in position. After two to three weeks the attached end of the flap is divided and sutured into position on the arm. The line of division can be readily marked out by placing the pattern in position over it.

The advantage of the method will be realized in direct transfers from limb to limb, such as calf or ankle to opposite leg or thigh. It will be found a great comfort to know that the flap will fit its new bed accurately without it having to be pulled into place by overstretching some portions or inserting stitches, which exert considerable tension. Gangrene and removal of stitches are thus largely avoided.

The same principle of reversing the operation is applicable in making the design for all tubed pedicle transfers, but is not quite so essential owing to the great mobility and vitality of these flaps.

A PATIENT WITH FOUR URETERS

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(With Special Plate)

A double ureter on one side is among the more common abnormalities of the urinary tract, and is not infrequently associated with a hydro-ureter or other congenital defect on the opposite side. The two ureters arise from separate pelves and commonly fuse at some part of their course, being seldom completely separate for their entire length. Most often they join shortly above the bladder, which they enter by a common orifice. The union may take place soon after leaving the kidney, a single ureter continuing to the bladder, though it may again bifurcate and enter the bladder by two openings.

Two ureters on both sides, each entirely separate through its whole length, with four separate openings into the bladder, is a condition so rare as to make such a case worth recording. There is no example of this condition in the museum of the Royal College of Surgeons, or in the museum at the Hospital for Sick Children, Great Ormond Street.

HISTORY OF THE CASE

A girl, aged 8 years and 11 months, had a first attack of pyelitis in June, 1928, lasting three or four weeks. She had similar attacks each year until August, 1931. Since then attacks have been more frequent. The main features of the illness were fever and increased frequency of micturition; there was no pain.

The patient is rather pale, but of normal development. There is no abdominal tenderness. The lower pole of the left kidney is palpable.

SPECIAL INVESTIGATIONS

Blood urea was 29 mg. per 100 c.cm. Urea concentration: before urea, 2.15; first hour, 2.55; second hour, 2.40; third hour, 1.40. Examination of a catheter specimen of urine showed: specific gravity, 1020; turbid; alkaline; fair number of leucocytes and organisms, an occasional bladder cell, and a few amorphous phosphates. Culture of the specimen resulted in a profuse growth of *B. coli*.

X-ray photographs (see Plate) taken after the injection of 13 c.cm. of uroselectan reveal the presence of two pelves to each kidney, opening into separate ureters. The lower pelvis on the right side is slightly dilated, but the calyces appear normal. The other three pelves are not dilated. The two ureters on the right side can be traced separately as far as the bladder. On the left side the shadows overlap, and only a single shadow can be traced to the bladder.

On cystoscopic examination (five-ounce distension) the following points were noticed: Bladder surface was normal. Two gaping ureters were seen on right side at same level. On the left side two openings were seen, the outer one small and retracted at a slightly higher level than the median opening, which appeared as a narrow slit. Indigo-carmin (1 c.cm.) was given intravenously, and showed in good colour in nine minutes, with a strong efflux from the outer ureter