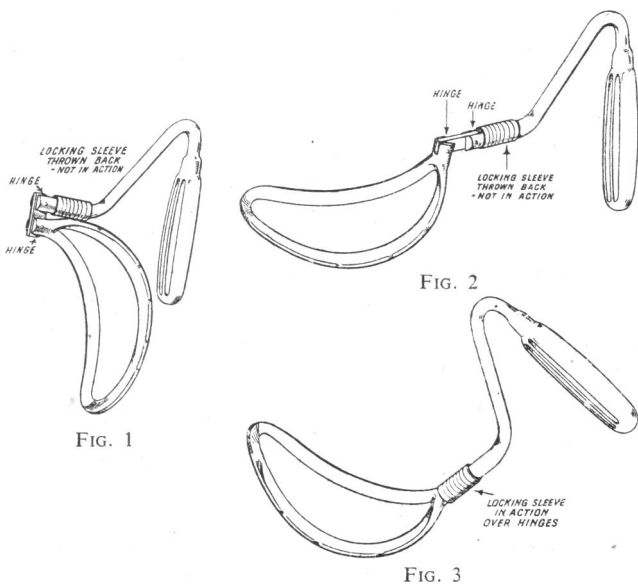


converting the instrument into one piece and making the blade rigid with the handle.



### Technique of Operation

The abdomen is opened by a subumbilical incision in the midline. A self-retaining retractor is inserted and the operation area packed off with a gauze roll in the usual way. A 2-in. (5-cm.) transverse incision is made through the uterine wall where the loose peritoneum is reflected from the bladder. The lower edge of the uterine incision is grasped with a vulsellum forceps and raised from the foetal head. With the handle folded back the curved blade of the extractor, lubricated with "dettol" cream, is introduced between the lower edge of the incision and the head. As it slides round the head the handle is straightened out and the hinge locked.

The assistant now takes the extractor in his left hand and gently lifts the foetal head against the uterine wall. The sucker in his right hand keeps the field clear of liquor. The surgeon now enlarges the incision at either end with scissor snips, at the same time applying fundal pressure with his other hand. There is usually no bleeding, but any vessels that are seen to be cut may be clamped with de Martel's forceps to forestall haemorrhage when the head is out. When the incision is large enough the head is slowly delivered by fundal pressure and the lift of the extractor. The operation is then completed in the usual manner.

Before labour, when the head is not engaged, the whole procedure is extremely simple. Under certain conditions modifications of the technique may be necessary. If during labour the bladder is raised on the lower segment the peritoneal reflection is incised separately and the bladder pushed down before the uterus is incised. If the head is deeply engaged in the pelvis it may be necessary to disimpact it by inserting two fingers into the uterus and pushing the head up before the extractor can be introduced. While the fingers are holding the head the extractor is introduced between the fingers and the lower edge of the uterine incision and slid into position before the fingers are withdrawn.

Once the extractor is in place the operator's difficulties are over. If the head lies in the transverse position it is turned to an occipito-anterior or, should it be easier, to an occipito-posterior position, when the foetal chin is slipped over the upper edge of the uterine incision and the head eased out with the extractor as a "face presentation."

*Advantages of Extractor.*—(1) The most striking advantage claimed for this instrument is the absence of haemorrhage during delivery of the head. Consequently the uterine incision can be enlarged bit by bit, the whole time under direct vision. The incision is therefore never made unnecessarily large. (2) Tearing the uterus should not occur, as delivery is slow and under complete control. Under these conditions unsuspected damage to the uterine vessels should be impossible. (3) If difficulty is experienced in turning the head it can be lifted out in any position. This is not possible when delivering with forceps, as they cannot be applied if the head lies in the transverse diameter. (4) The foetal skull is subject to a minimum of pressure, which is probably less than that of normal labour. Head injuries should therefore be extremely rare. This is not always so after a hurried delivery by the operator's hand or the small forceps. (5) With the use of the extractor the operation becomes a neat surgical procedure. This cannot be claimed for most other methods of delivery in use at present.

### Discussion

The instrument has now been tested in over a hundred cases. When the head is not engaged it has been found universally satisfactory and easy to introduce. If the head is low a little practice is needed to introduce the extractor successfully, but it is found that the head can nearly always be raised enough to make this possible, though it may be necessary to enlarge the uterine incision. The extractor has not been tested in extraperitoneal section, as since penicillin has been in good supply I have not used this method, but it might prove a useful adjunct in this operation.

This report is published in the hope that the extractor will be tried out and improved by others, and that its routine use may simplify what most surgeons still regard as a difficult manoeuvre.

### Summary

A new head extractor for low caesarean section is described. Other methods of delivering the head are discussed. The technique of using this instrument is described, with the modifications necessary in certain circumstances. Advantages claimed for the extractor are listed.

(The instrument was made by the Surgical Division of Allen and Hanburys (Africa) Limited, and will be obtainable through Allen and Hanburys, Wigmore Street, London.)

## PAPILLOMATA OF BLADDER TREATED WITH PODOPHYLLIN PRELIMINARY REPORT

BY

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In 1942 Kaplan reported a series of cases of genital warts successfully treated with a suspension of podophyllin in mineral oil. The application of this drug to meatal and urethral papillomata revealed an apparent resistance of normal transitional epithelium to its caustic action; this suggested the possibility of its use in treating papillomata of the bladder. After a preliminary investigation a suspension of the drug in liquid paraffin was used in the following cases.

### Case Reports

*Case 1.*—A man aged 73 had had haematuria for several months, which had been severe for the last 13 days. Cystoscopy showed numerous large papillomata involving the right

lateral and the posterior walls of the bladder, too extensive for perurethral fulguration. The general condition of the patient contraindicated cystostomy and open fulguration. Five instillations of podophyllin in liquid paraffin were carried out twice weekly in strengths increasing from 1 to 12%. During these applications the normal mucosa of the urethra and bladder showed no reaction to the drug. Haematuria ceased after the first instillation. After the fifth the growths had diminished in size to a small patch of sessile papillae above the right ureteric orifice, where it was easily fulgurated per urethra. After one year the patient has had no recurrence. The bladder and urethra show no ill effects from contact with the drug.

*Case 2.*—A man aged 30 had had haematuria on and off for three years with marked anaemia. Cystoscopy showed multiple papillomata involving the posterior and left lateral walls of the bladder, too extensive for perurethral fulguration. Histological section revealed benign papillomata. Four instillations of podophyllin in liquid paraffin increasing in strength from 1 to 8% were carried out in the course of four weeks. There was no reaction of the bladder or urethral mucosa as seen on cystoscopy and urethroscopy. After the fourth application the papillomata showed areas of sloughing and the growths were much diminished in size. The growths were completely cleared from the bladder after three fulgurations in the out-patient department.

*Case 3.*—A man aged 72 first noticed haematuria two weeks before I saw him. On cystoscopy a large papilloma about 2.5 cm. in diameter, as estimated by the scale on a ureteric catheter, was seen above the left ureteric orifice. Two instillations of podophyllin in liquid paraffin of 4 and 10% were carried out without any discomfort. Three weeks after the second application the tumour had shrunk enough to allow the growth to be fulgurated at one sitting.

*Case 4.*—A man aged 44 had had haematuria for three weeks. On cystoscopy a simple papilloma above the left ureteric orifice about 1.5 cm. in diameter was seen. In the out-patient department 5 ml. of podophyllin in liquid paraffin was instilled into the bladder. No discomfort resulted from the application. Three weeks later the papilloma had shrunk considerably and appeared much atrophied. The base was fulgurated per urethram.

### Technique

The method that has evolved from the above cases is that at the end of diagnostic cystoscopy the window of the cystoscope is placed immediately over the growth and the bladder is emptied. Then 3 ml. of 0.5 to 1% podophyllin in liquid paraffin is introduced into the bladder through the instrument direct on to the papilloma. The telescope is then inserted to empty the sheath of the oil and for its withdrawal. The patient is turned on to the side on which the growth is situated and lies thus for half an hour, by which time urine will have collected in the bladder and will tend to float the oil off the tumour. In order to maintain the contact of the suspension with the papilloma the patient is turned on to the opposite side, and remains there for as long as possible. He is encouraged to empty his bladder when the urge arises, as a result of which nearly all the podophyllin will be expelled. Even if this expulsion is not complete the bladder mucosa is not apparently injured.

The initial minimal dose is used to test the susceptibility of the patient and the potency of the drug, the latter varying greatly in different samples. Provided no reaction occurs, an instillation of an effective dose of 5 ml. of 4% podophyllin in liquid paraffin is introduced through the cystoscope four to seven days later, the patient lying on alternate sides as before. A week later a third application is carried out through the cystoscope, using 5 ml. of 8% podophyllin in liquid paraffin. Further applications can be made depending on the size and extent of the growth. Perurethral fulguration is used to complete the destruction of the new growth.

### Discussion

The commercial podophyllin powder is a mixture of the resins produced from the American and Indian podophyllum rhizome by alcoholic extraction and water precipitation. Merck's *Index* states that the resin contains picropodophyllin, quercitrin, podophylloresin, and podophyllotoxin. The active principle of the cutaneous application has not been determined. Haber (1945) suggests that an alkaline secretion of the wart converts podophyllotoxin into podophyllic acid, which coagulates the wart. Sullivan and Wechsler (1947) have caused the disappearance of the wart with a filtered aqueous extract of podophyllin.

The mode of action is also debated. Culp and Kaplan (1944) suggest that degeneration is produced by spasm of the smaller vessels owing to irritation of the drug. Sullivan and Wechsler, investigating its cytological action on the growing root of the onion, found that it had a marked effect on the chromosomes of the nuclei, causing increased mitotic figures in the metaphase and later the decrease and complete absence of the anaphase and telophase figures. King and Sullivan (1947) showed that the action of podophyllin and colchicine on the skin was similar, causing varying degrees of destruction of cells, mainly in the deeper part of the prickle-cell layer, some being completely destroyed as shown by shrunken eosinophilic cytoplasm and pyknotic nuclei, while others reveal swollen basophilic reticulated cytoplasm, thickened cell membranes, diminished or absent intercellular bridges, peripheral or perinuclear vacuolation of the cytoplasm, and changes in the nuclei, which these authors interpreted as abortive and not as true variations of mitosis (so-called podophyllin cells).

The only warts that resist podophyllin are those which are extensively keratinized; it might therefore be expected that the delicate epithelium of a bladder papilloma would be affected by this drug. In three of the cases reported, the size and extent of the new growths would normally have necessitated open fulguration, but after a few applications of podophyllin they had decreased to a size that allowed them to be successfully fulgurated per urethram. The fourth case showed marked degeneration of the papilloma, so that the base alone required fulguration. There have been no immediate or remote ill effects following the application of this drug in those cases which have been observed for over a year, nor has there been any evidence on cystoscopy or urethroscopy of any reaction of the normal bladder or urethral mucosa. Colchicine is said to be superior to podophyllin in its action on the skin; but further investigation of this drug is required before extending its use. Other vehicles besides liquid paraffin have been tried with the object of improving the application of the suspension to the new growth, such as using an oil heavier than water, but without improving the results.

The results obtained by the application of podophyllin to papillomata of the bladder are encouraging enough to warrant a further trial of this drug or of drugs having a similar action (such as colchicine, auramine, urethane, and sodium cacodylate (Ludford, 1936)).

### Summary and Conclusions

Four cases of papillomata of the bladder treated with podophyllin in liquid paraffin applied direct to the new growth through a cystoscope are reported and the technique is described. Three of these cases would have required cystostomy and open fulguration, but after a few applications of podophyllin the extent and size of the tumours had diminished so that they were successfully treated by perurethral fulguration. The fourth case showed marked atrophy of the growth, so that perurethral fulguration of the base of the papilloma was alone required.

The number of cases in which this method has been carried out is too small to allow any definite conclusions to be drawn,

but the results appear to warrant further trial of this drug and those allied to it in action.

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## CASE OF SARCOMA OF THE LARYNX

BY

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Tumours other than squamous-cell epithelioma of the larynx are rare. According to Havens and Parkhill (1941) 26 cases were encountered at the Mayo Clinic during a period of 30 years. These included four cases of sarcoma previously reported by New (1935). During that period 1,100 malignant and 722 benign tumours of the larynx were examined at the Mayo Clinic. Of the 26 malignant non-squamous-cell tumours 11 were cases of sarcoma, 8 of haemangio-endothelioma, 5 of adenocarcinoma, 1 of melano-epithelioma, and 1 of myeloma. Of the 11 cases of sarcoma 8 were diagnosed as fibrosarcoma, including fibromyxosarcoma, 2 as chondrosarcoma, and 1 as rhabdomyosarcoma. The ratio of all other types of malignant disease of the larynx to squamous-cell epithelioma of the same organ was 1:44, and the ratio of sarcoma to carcinoma was approximately 1:100.

This is at variance with Ewing (1928), who stated that sarcomas form about 11% of malignant laryngeal growths. Ewing added, however, that "many cases recorded as sarcomas are of epithelial origin." In Jackson and Coates's (1929) series of 643 malignant tumours of the larynx not one case of true sarcoma was found, and Thomson and Colledge (1930), in a wide experience, have seen only one case of sarcoma. Clerf (1946), from the Jefferson Hospital, Philadelphia, where, since 1930, 740 cases of carcinoma of larynx were seen, reported 8 cases of sarcoma (4 fibrosarcoma), and notes that 7 further cases have been added to the literature since Havens and Parkhill's report. A ratio of 1:100 of sarcoma to carcinoma is probably not far off the mark.

Sarcoma of the larynx is a localized tumour with little tendency to infiltrate underlying and surrounding tissues. It is very often pedunculated, less often sessile or lobulated. Its surface is not ulcerated, but in some cases erosion of the surface can be observed. The sites of predilection of sarcoma of the larynx are the true vocal cords. Metastases are very uncommon, recurrences less so. The size of the tumour varies, but generally it is bigger than that of carcinoma. The symptom most frequently present is huskiness, and the mechanical obstruction causes dyspnoea only rarely.

In two out of the four cases described by Figi (1933) an emergency tracheotomy had to be performed. Dysphagia is rare except in cases involving the epiglottis or when the tumour occludes the hypopharynx. A history of influenza

or acute or chronic chest troubles immediately before the finding of a tumour of the larynx is often encountered.

Histologically, according to the presence of a variety of mesodermic structures, fibromyxosarcoma, chondrosarcoma, and rhabdomyosarcoma can be distinguished. In fibrosarcoma, strands of spindle or round cells arranged in an irregular pattern with collagenous fibrils in between the cells can be seen. The blood vessels are often scanty and small. The cell nuclei are small and spindle-shaped, but in some tumours round nuclei can be seen.

The treatment is usually on surgical lines. According to the degree of differentiation of the tumour, and its cellular population, the question of post-operative or "radical" radiotherapy has to be considered. Simple punching of the tumour with direct or indirect laryngoscopy followed by electrocoagulation of the point of attachment of the tumour, although feasible in some cases, is not satisfactory. Laryngofissure is adequate even in cases in which, on first inspection, the size of the tumour rules this procedure out.

The prognosis in sarcoma of the larynx is relatively good. Of the 11 cases of sarcoma at the Mayo Clinic (Havens and Parkhill, 1941) 9 were treated principally by surgical operation and 2 with radium—8 patients were alive and well (6 for more than five years), 2 died without recurrence, and 1 died with recurrence. In Clerf's series 2 were living for over five years, 3 died of intercurrent disease, 1 died of local recurrence and metastases in the lung, and 2 were observed for only a few months post-operatively.

### Case Report

The patient was a man aged 66. On May 12, 1943, he reported huskiness of a few weeks' duration and some difficulty on swallowing since December, 1942. A smooth, mobile, semi-pedunculated wet-looking tumour, 0.8 cm. across, was found in the middle of the right true vocal cord. The movements of both vocal cords were normal and full. On June 1 the tumour was removed by diathermy (E.B.B.), and the piece sent for section.

The pathological report (E.S.D.) was "sarcoma, probably fibromyxosarcoma." This section was also seen by Dr. A. H. T. Robb-Smith, Radcliffe Infirmary, Oxford, who concurred in the diagnosis of fibromyxosarcoma. The patient was followed up, and was well until November, 1943, when, after a bout of influenza, he started complaining of huskiness again, and a small nodule reappeared in the middle of the right vocal cord, which was now limited in its movements. The tumour was hard and nodular, roughly circular, and measured 0.7 cm. each way. On Jan. 11, 1944, a laryngofissure was performed (E.B.B.). Post-operative deep x-ray treatment was given (B.J.). The section of the removed tumour was seen by Mr. D. Harmer and the late Dr. J. C. Mottram, of Mount Vernon Hospital, Northwood, who also concurred with the original report of fibrosarcoma. The patient was well on Jan. 11, 1948, and, except for slight thickening of the right vocal cord and anterior commissure, there was nothing abnormal in his larynx.

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Sponsored by the Mexican Government and the British Council, Dr. Luis Vargas is spending six weeks in Britain to study Mexican and neotropical mosquito and blackfly specimens in the Natural History Museum. Dr. Vargas is chief parasitologist in the medical science division of Mexico University Graduate School, and laboratory-of-entomology chief in the Institute of Public Health and Tropical Diseases.