quantities of glucose infusions for correction. The case reported by Thompson and Hilferty (1952) showed improvement for a short time after heavy intravenous glucose therapy. The present case showed improvement for short periods, but after repeated infusions the amount of glucose required progressively increased.

It would appear that the cause of the persistent hypoglycaemia was the destruction by tumour and cirrhotic changes of 80% of the liver tissue. This case is interesting in that, apart from the hypoglycaemia, there was no evidence of hepatic failure.

I wish to thank Dr. I. A. Simpson, senior biochemist, and Dr. A. T. H. Marsden, senior pathologist, of the Institute of Medical Research, for their kind assistance, and the Director of Medical Services, Federation of Malaya, for permission to publish

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Malignant Melanoma of the Anal Canal

Malignant melanoma occasionally occurs in the anal canal. The condition was known to occur in the horse before the end of the eighteenth century, but recorded human cases are few, the first being reported by Moore in 1857 (Chalier and Bonnet, 1913). By 1950, 92 cases had been described (Oppenheim and O'Brien, 1950). The characteristics of malignant melanoma of the anal canal should be recognized, since it is the most dangerous lesion arising in this region.

CASE REPORT

A frail woman aged 75 attended hospital complaining of piles, which she said had been down for one year. They had been worse during the past month, and, although only causing slight discomfort, had been accompanied by a discharge of blood and mucus from the anus. She otherwise felt quite fit.

On examination she was thin and pale, with a haemoglobin of 69%. The liver edge could be felt one finger-breadth below the costal margin. A black spherical growth 8 cm. in diameter was seen at the anal orifice. Areas of yellow slough were present on the tumour surface and it bled readily on palpation. Rectal examination revealed that the growth apparently arose from the posterior aspect of the anal margin and extended 4 cm. up the anal canal. It was freely mobile. Soft mobile lymph nodes were palpable in the right groin. Further physical examination was negative. A tentative diagnosis of malignant melanoma was made and a biopsy taken.

Biopsy Report (Dr. G. A. Dunlop).—This is a malignant neoplasm, the cells of which are anaplastic and pleomorphic. Numerous melanophores are present. Diagnosis, malignant melanoma.

Operation.—On July 30, 1952, under low spinal anaesthesia (Dr. C. Walshe), the patient was placed in the lithotomy position, when it was found that the malignant melanoma could be delivered through the relaxed external anal sphincter, when it hung by a pedicle 1.5 cm. wide from a point of origin on the posterior aspect of the anal canal, 2.5 cm. inside the anal orifice. The tumour was excised with its pedicle and an area of apparently uninvolved tissue at the base of the pedicle. Bleeding vessels were ligated and a rubber tube drain was left in the anal canal.

Post-operatively, a five-day course of chloramphenicol, 500 mg. thrice daily, was given, morphine administered as required, and the tube drain removed on the fourth day. By August 11 the wound was healing well and the patient

was discharged home. Histological examination of the growth by Dr. G. A. Dunlop confirmed the biopsy diagnosis of malignant melanoma.

When seen on August 28, the patient was fit. Her anal wound was healed but her liver was still enlarged. On October 23 she was still in good health, with physical signs as before. In addition, there was a doubtful recurrence of the growth, 1 cm. in diameter, on the posterior wall of the anal canal. In January, 1953, apart from the enlarged liver, there were no abnormal physical signs. It was assumed that the suspected area of recurrence was in fact the operation scar. On January 7, 1955, the patient reattended hospital with a large recurrence in the recto-vaginal septum—a survival of two and a half years since operation.

COMMENT

These growths arise from melanoblastic epithelium in the anal canal. It is probable that so-called melanoma of the rectum also arises primarily from anal skin or from skin rests in the rectum, and appears clinically as a rectal growth because of upward infiltration. Malignant melanoma is rare in other parts of the alimentary canal, although it is known in the palate.

Anal melanomata are sessile in 70% of cases. They occasionally arise in a pre-existing polyp and may reach a large size if untreated. Pigmentation of the primary tumour is not invariable; the more malignant varieties are unpigmented. Metastases are almost invariably full of melanin, although the presence of pigment in regional lymphatic nodes does not always indicate the presence of metastases, for pigment may be filtered from broken-down tumour cells (Linder and Wood, 1936).

Locally, the growth spreads up into the rectum, but, unlike carcinoma of the rectum, not in an annular fashion. It eventually breaks through the muscularis into the perirectal fat. Metastasis is the rule, by the lymphatics to the inguinal glands and later by the blood stream to the liver and lungs. With widespread metastases, melanuria can occur. Rarely, an anal melanoma grows slowly and remains localized for some time.

Clinically, a patient with malignant melanoma of the anal canal may complain of piles, loss of blood per rectum, or diarrhoea with tenesmus. Ulceration of the growth is common, and can give rise to severe pain on defaecation. Loss of weight occurs late in the disease. On examination a tumour may be seen and can always be palpated, although on occasion the primary growth is small. Patchy perianal pigmentation may be noticed. Differential diagnosis includes carcinoma of the rectum, prolapsing rectal polyp, and thrombosed external piles. Biopsy provides a means of absolute diagnosis.

As to treatment, if early diagnosis is made and the patient is otherwise fit, abdomino-perineal excision of the rectum and anal canal, with high ligation of the vascular pedicle, is indicated. Bilateral block dissection of the inguinal glands may be necessary. In cases with distant metastases, palliative perineal resection of the growth can be performed, but this procedure sometimes appears to favour the further dissemination of the growth. Reports of treatment by local excision and radium needling or radon seeds are not encouraging (Oppenheim and O'Brien, 1950).

Radiotherapy is ineffective, as these growths are radio-resistant. Prognosis is poor, early death with widespread metastases being the rule.

I wish to thank Mr. F. J. Milward, consulting surgeon, Mansfield General Hospital, for allowing me to treat this case, and Dr. G. A. Dunlop for his kindness in preparing and reporting on the sections.

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