METASTATIC PARAPLEGIA OF PROSTATIC ORIGIN WITH NOTES OF A CASE OCCURRING 28 YEARS AFTER SUPRAPUBIC PROSTATECTOMY

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One of the commoner sources of spinal metastasis is the malignant prostate, and occasionally a very striking picture of secondary prostatic cancer in the spine is produced by the appearance in a radiograph of the spine of a densely sclerotic or "ivory" vertebral body (Rogers, 1955). More often metastasis occurs in the epidural space and is not apparent in radiographs.

Usually these metastatic spinal tumours have arisen from prostates which, on clinical examination, may or may not indicate that they are carcinomatous, but in subjects whose serum acid phosphatase level is elevated. Carcinoma may also arise in the remnant of prostatic tissue which remains after prostatectomy.

It is well recognized that suprapubic prostatectomy is an enucleation of an adenomatous and enlarged prostate from a thinned-out and compressed shell of gland, which forms an adventitious or false capsule lying within the fascia of Denonvilliers. That this remnant forming the bed from which the prostate has been removed may occasionally become carcinomatous may not be surprising, and cases of prostatic carcinoma do sometimes occur after prostatectomy. The following example is perhaps worthy of record, both because of the late onset of paraplegia from a prostatic metastasis 28 years after suprapubic prostatectomy, and the recovery which followed treatment in the patient who was aged 79.

Case Report

For eight weeks following a brief attack of tenesmus, a retired linotype operator aged 79 had increasing weakness, loss of feeling in the legs, and unsteady walking. Twenty-eight years previously suprapubic prostatectomy had been performed and seven years later a vesical calculus removed by the late Mr. T. E. Hammond, of this Unit. Except for these operations he had enjoyed good health and had only recently retired from his life's work. He appeared remarkably fit and well for his age.

Examination revealed a spastic paraplegia with an upper sensory level at the eighth thoracic segment. On rectal examination the remnant of the prostatic shell could be felt as hard and nodular. The serum acid phosphatase was 20.4 units. The cerebrospinal fluid obtained by lumbar puncture contained 80 mg. % of protein and myelography showed a block in the upper thoracic region of the spine. Laminectomy revealed an extradural tumour compressing the theca and its contents at the level of the second thoracic vertebra. The tumour stripped readily from the dura and was removed, and on examination proved to be secondary prostatic carcinoma (Fig. 1). He was given stilboestrol, made a good recovery, and was soon able to walk again.

FIG. 1.—Microscopic appearance of extradural tumour (carcinoma of prostate) which was compressing the theca at the level of the second thoracic vertebra and producing paraplegia, recovery from which followed laminectomy and removal of the tumour. $\times 100$.

Comment

It may be contended that the diagnosis was apparent because of the nodular prostatic remnant and the high concentration of acid phosphatase in the serum, also that recovery may have occurred with stilboestrol alone and that the decompressive laminectomy was unnecessary. On the other hand the patient had a compression paraplegia which was progressive and for which there may have been other causes such as a primary tumour of the spine, the cord or its nerve roots or meninges, especially as there was no radiological evidence of metastasis in the spine or elsewhere; moreover, it did not appear justifiable to risk further compression of the cord while waiting to test the effect of stilboestrol therapy. In any event the outcome of this elderly patient, now in his eighties, was satisfactory.

The frequency with which carcinoma develops in the prostatic bed after prostatectomy for apparently benign enlargement of the gland is variously estimated as from 3 to 11.5% (Smith and Woodruff, 1950, 39 of 648 patients, *i.e.*, 6%; Bakalim, 1952, 8.7%; Caine, 1954, 3%; McDonald and Coburn, 1954, 11.5%; McCrea and Karafin, 1955, 4.3%). There are two possible sources of this occurrence: either a so-called occult carcinoma in the apparently benign gland, the presence of undetected carcinoma in clinically diagnosed benign hypertrophy having been estimated as 9% (Labess, 1952), or else a malignant change in the thinned-out and compressed, but otherwise normal, prostatic tissue which constitutes the prostatic shell from which the hypertrophic glandular tissue has been removed.

The interval between suprapubic prostatectomy and the discovery of carcinoma is given by Smith and Woodruff (1950) as under five years in four cases and as 10 years or over in three others. In none of the reported cases mentioned in any of the papers to which I have had access is there an interval approaching 28 years, as in the case recorded here. This long interval would suggest that in this case neoplasia occurred in the prostatic remnant or shell and makes it exceedingly unlikely that the prostate removed 28 years before the spinal metastasis contained carcinoma. This is further supported by the fact that sections of the prostate had been kept, and, when recently further examined, confirmed the simple hypertrophy of the gland at the time of its removal (Fig. 2).

FIG. 2.—Microscopic appearance of prostate removed 28 years before removal of the tumour shown in Fig. 1. The pathologist's report is, "adenomatous hypertrophy" and careful examination failed to reveal any "occult carcinoma". $\times 100$.

Summary and Conclusion

The incidence and reasons for the occurrence of cases of carcinoma of the prostate after suprapubic prostatectomy are discussed. A case is recorded in a man aged 79 in whom carcinoma developed in the shell or remnant of prostatic tissue 28 years after suprapubic prostatectomy had been performed for a benign enlargement of the prostate. Metastasis took place to the epidural space at the level of the second thoracic vertebra where it compressed the cord and produced paraplegia, from which recovery ensued after decompressive laminectomy and stilboestrol therapy.

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