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Primary choriocarcinoma of the bladder evolving from a transitional cell carcinoma

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SUMMARY A 67 year old man presented with haematuria, which on investigation was shown to be derived from a bladder tumour. The tumour initially was a typical transitional cell carcinoma except for rare trophoblastic cells. Over the next year and a half it gradually evolved into a choriocarcinoma. Postmortem examination confirmed that this was a primary choriocarcinoma of the bladder with no other sites of derivation shown.

Choriocarcinomas in men are principally tumours which arise in the testes, although on occasions they may arise in other sites such as the mediastinum and retroperitoneal space.[1] Only five well documented cases of primary choriocarcinoma of the bladder have been described in the English published work.[2–6] In only two of these[5 6] the patient presented with a transitional cell carcinoma, which terminated as a choriocarcinoma with a postmortem confirmation of normal testes. We report here a similar case from the United Kingdom where the gradual transformation of a predominantly transitional cell carcinoma of the bladder to a choriocarcinoma was confirmed by multiple biopsies and necropsy. The diagnosis was confirmed by positive human chorionic gonadotrophin (HCG) staining using the immunoperoxidase method as well as considerably raised serum and urine HCG concentrations.

Case report

A 67 year old man who had no relevant past medical history presented in June 1981 with a history of infrequent haematuria which had started in July 1980. Initial investigations indicated a tumour mass with calcification on the anterior wall of the bladder. All other organs including the testes were normal. A transurethral resection of the tumour was performed in July 1981, the tumour being staged T_1.[7] Check cystoscopy showed recurrent tumour in October 1981, which again was locally excised. In January 1982 a massive recurrence had occurred which was considered inoperable and staged T_3. This was treated by pelvic rotation radiotherapy. The patient appeared well after this localised procedure with no evidence of residual tumour. In October 1982, however, he presented with radiographic evidence of pulmonary metastases as well as gynaecomastia. Serum HCG concentration at this time was considerably raised at 8158 IU/l. Serum α-fetoprotein was normal. Ultrasound examination and computed tomography scan of the testes were normal. He was initially treated with methotrexate weekly, which was later changed to a modified Einhorn chemotherapy regimen which utilised bleomycin, vinblastine, and cis-platinum. In spite of this treatment the tumour masses did not regress appreciably and the patient died in December 1982. A necropsy was performed.

PATHOLOGY REPORT

The initial biopsy specimen obtained in July 1981 showed a transitional cell carcinoma of grade III type,[8] which was characterised by small areas of papillary tumour with necrosis and calcification. The bulk of the tumour consisted of malignant transitional cells with isolated atypical mononuclear and multinucleated cells with large nuclei; some of these cells stained positively for HCG (Fig. 1). By October 1981 the histology, although similar, now showed a clearly trophoblastic pattern of tumour with both syncitial and cytotrophoblastic components present and arranged in areas in a definite papillary pattern. In January 1982 only small elements of transitional tumour were present with the bulk of the biopsy specimen showing necrosis or choriocarcinoma. Immunoperoxidase staining of representative slides showed the presence of HCG

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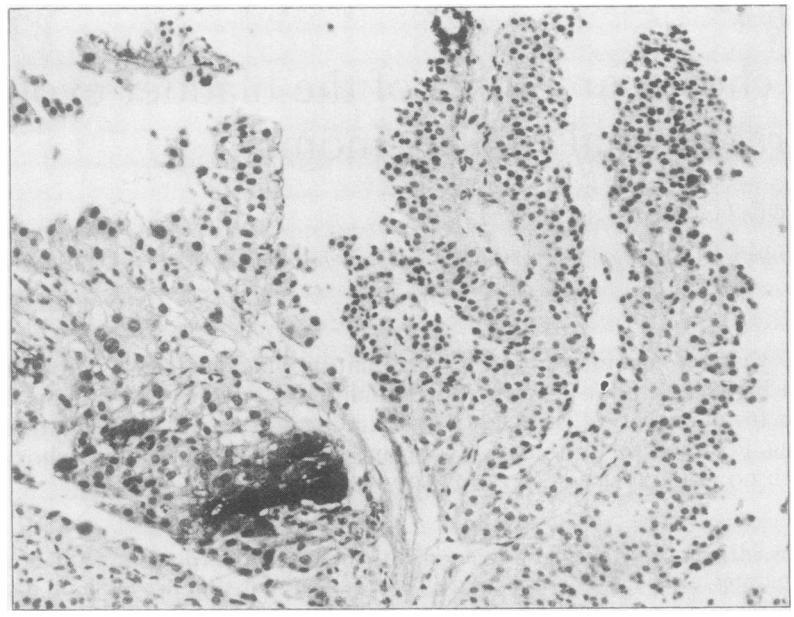

Fig. 1 *Immunoperoxidase staining for HCG. On the right is a typical papillary transitional cell carcinoma. In the lower left quadrant is a zone of positive staining in syncitial trophoblastic cells. Original magnification × 185.*

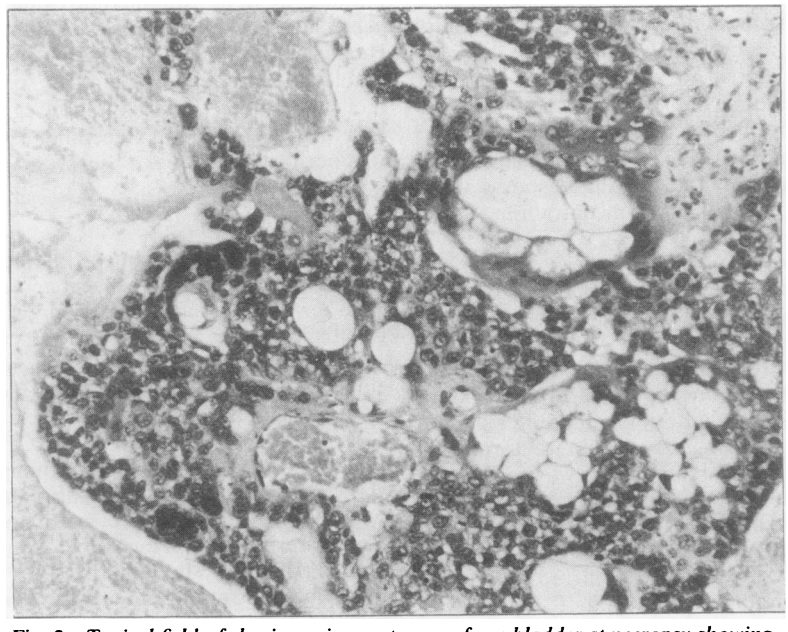

Fig. 2 *Typical field of choriocarcinoma tumour from bladder at necropsy showing syncitial and cytotrophoblastic elements arranged in a papillary pattern. Original magnification × 400.*

staining cells with the number increasing with the progression of the tumour.

Necropsy showed that the immediate cause of death was a severe chest infection with necrotising acute tracheobronchitis. Tumour was identified in the lungs and paratracheal groups of nodes as well as a solitary mass 4·0 cm diameter in the dome of the bladder. There was no evidence of tumour elsewhere, nor were primary tumour deposits found in the retroperitoneum, mediastinum, or testes. Histology of the bladder showed a typical choriocarcinoma (Fig. 2) extending into muscle but limited to the bladder. All the metastases had a similar choriocarcinomatous morphology. The testes were examined in a manner identical to that used by Ainsworth and Gresham.[2] Serial 5 μm sections of the testes were cut with every 40th section mounted, stained, and examined. This excluded any lesion greater than 0·02 cm in diameter. The testes showed no evidence of tumour or scarring but showed absence of spermatogenesis with thickening of tubule basement membrane. The testicular changes would be attributable to chemotherapy.

Discussion

Only five previous reports in English of primary choriocarcinoma of the bladder have appeared in published work.[2–6] In order to satisfy the criteria for a diagnosis of choriocarcinoma it is necessary to find recognisable syncitiotrophoblast and cytotrophoblast, with the two elements being arranged in a definite papillary pattern.[9] Except for the cases of Kawamura[5] and Obe,[6] the tumours have appeared from inception to be typical choriocarcinoma. We have presented here a similar case but with a more clearly illustrated transformation. The tumour produced HCG, which in this case was attributable to the choriocarcinomatous elements. It is interesting to note, however, that Libby *et al*[10] showed that in two of 10 cases of transitional cell carcinoma which they studied, urine contained raised HCG concentrations. They interpreted this to indicate that the tumours were producing ectopic HCG. The question is raised as to whether in some of these tumours there were in fact choriocarcinomatous elements which were not recognised histologically.

Transitional cell tumours are well known for their metaplastic potential, as is commonly seen with small areas of glandular or squamous differentiation. The possibility of metaplasia to a trophoblastic tumour would appear possible if parts of the genome concerned with trophoblastic transformation were activated. This is the most likely explanation in this case. The possibility that the tumour was a secondary from the testes would appear to have been excluded by the postmortem examination of the testes. It is arguable that chemotherapy could have caused regression of a small testicular primary, but as it did not have an appreciable impact on the bladder tumour or secondaries this appears unlikely. Furthermore, in life there was no evidence of appreciable tumour regression by clinical or radiological investigations. No scars were found in the testes to indicate an eradicated primary site. The possibility of a germinal rest which was activated in the presence of a transitional cell carcinoma is conceivable but unlikely. In conclusion, we are satisfied that this was a true primary choriocarcinoma which most probably evolved by a metaplastic process from a transitional cell carcinoma of the bladder.

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