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Case report

Carcinoid tumour of the uterine corpus

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Summary. A carcinoid tumour occurred in the uterine fundus causing an enlargement (12–14 weeks size). The patient did not have the carcinoid syndrome, despite elevated urinary 5-hydroxyindole acetic acid levels. The tumour had a typical organoid pattern with argentaffin-positive cells. Whilst a metastasis from an occult primary lesion cannot be entirely excluded, it is felt that this is a primary tumour most likely arising from resident endocrine cells in the endometrium.

Key words: Carcinoid – Uterus – Endocrine cells

Introduction

Primary carcinoid tumours of the female genital tract occur most frequently in the ovary (Nogales 1987). Rare cases have been described in the uterine cervix (Albores-Saavedra et al. 1976; Habib et al. 1979). A carcinoid tumour occurring in the endometrium has been documented (Albores-Saavedra et al. 1979) but, to the best of our knowledge, a primary carcinoid tumour arising in the uterine corpus and producing uterine enlargement has not previously been described.

Case report

An 82-year-old female presented with abdominal swelling, which examination localised to the fundus of the uterus. The patient's past history was non-contributory. She did not complain of post-menopausal bleeding, flushing or diarrhoea. Gynaecological examination confirmed an enlarged uterus (12–14 weeks size) and showed the cervix and adnexa to be normal.

Ultrasound showed a solid mass, approximately 5 cm in maximal diameter, in the uterine fundus. The ovaries were small and in keeping with age-related atrophy. The liver and other abdominal organs were within normal limits. CT scan localised the mass to the uterus. There was no evidence of involvement of other organs.

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A needle biopsy of the mass was performed and three cores of tissue were obtained, the largest measuring 14×3 mm. At the same time a curettage was performed. This showed atrophic endometrial glands and no other pathology. Urinary 5-hydroxyindole acetic acid (5-HIAA) levels were assessed after a diagnosis of carcinoid tumour had been made. The 24-h urinary 5-HIAA level was 0.32 mmol/dl (normal range: 0.00–0.05 mmol/dl).

Further treatment was not offered in view of the patient's age, and she was discharged

Materials and methods

The tissue was fixed in 10% buffered formalin. Haematoxylin and eosin, Grimelius and Masson Fontana stains were performed.

Immunohistochemistry on the paraffin-embedded tissue using the avidin-biotin complex for the following antibodies was performed: chromogranin (Boehringer Mannheim, FRG; dilution 1 in 20), synaptophysin (Biogenex Medos, Australia, 1 in 200), S-100 protein (Dakopatts, USA, 1 in 200), gastrin (Dakopatts, 1 in 300), somatostatin (Dakopatts, 1 in 300), and cytokeratin (AE1/AE3) (Boehringer Mannheim, 1 in 400).

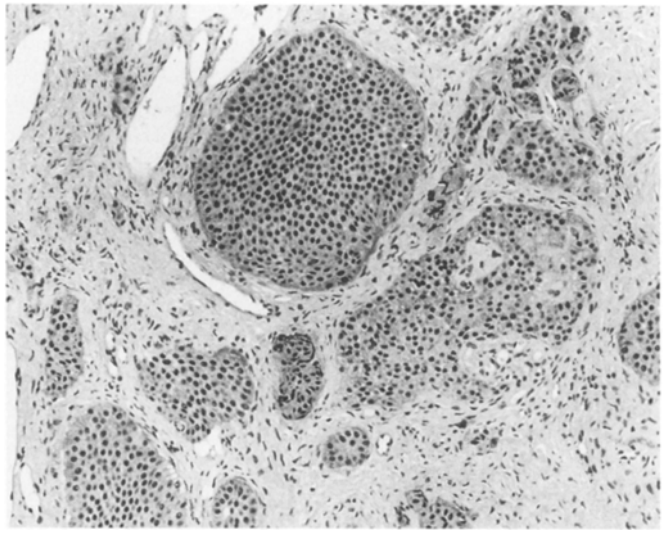

Fig. 1. Insular carcinoid tumour with islands set in fibromuscular stroma. H&E, ×100

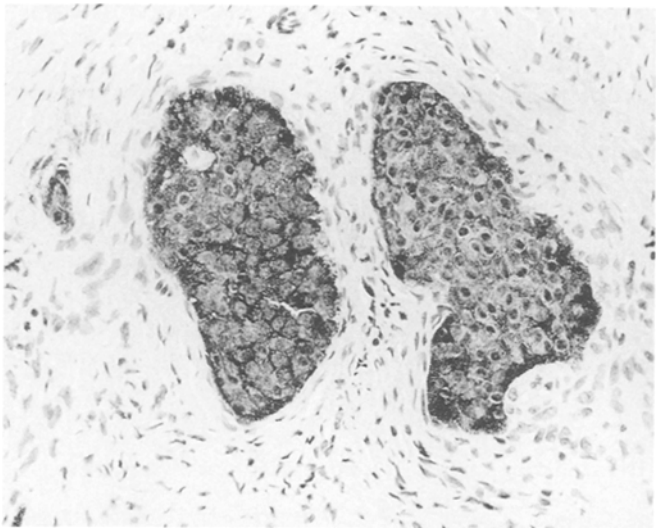

Fig. 2. Tumour exhibiting strong chromogranin positivity. Note peripheral cells staining more intensely. Immunooperoxidase staining for chromogranin using ABC technique, ×400

Results

The core of tissue contained islands and nests of uniform cells set in a fibromuscular stroma (Fig. 1). Individual cells showed little pleomorphism, finely dispersed chromatin and eosinophilic, slightly granular cytoplasm. The overall cyto-architectural features were typical of an insular, mid-gut type of carcinoid tumour. The tumour was argyrophilic and gave a positive argentaffin reaction.

Chromogranin (Fig. 2) and S-100 protein were strongly expressed. Synaptophysin was negative and there was positive cytoplasmic staining with cytokeratin, including "dot-like" accentuation.

Discussion

The pivotal question is whether this is a primary or metastatic carcinoid tumour. Amongst the possible primary sites, lung, the gastrointestinal tract, cervix of the uterus and ovary have to be considered. Microscopic tumours in these sites are impossible to exclude. However, the clinical presentation as uterine enlargement (irrespective of a primary or metastatic tumour) is sufficiently uncommon to warrant comment.

Primary carcinoid tumours occurring in the female genital tract are well documented. Ovarian carcinoids arise in two settings. The first occurs in a teratoma (monodermal) where endodermal stem cells are thought to be the progenitor cells (Cheng and Leblond 1974). Secondly, carcinoid tumours may exist as a primary tumour unrelated to teratomas. In this context, histogenesis is debatable, and origin from resident Kulschitsky cells has been rejected (Nogales 1987). In the cervix uteri, pure carcinoid tumours have been described (Albores-Saavedra et al. 1976; Habib et al. 1979), as well as in association with endocervical carcinoma (Mullins and Hilliard 1981). In an analysis of 12 patients with primary cervical carcinoids, Albores-Saavedra et al. (1976) found none of the patients to manifest the carcinoid syndrome. Furthermore, none had elevated 5-HIAA urinary levels.

The patient in the case under discussion did have an elevated 5-HIAA level but no symptoms of the carcinoid syndrome. The absence of endocrine symptoms is compatible with elevated tumour products detected either by radioimmunoassay or immunohistochemical means, as demonstrated in gastroduodenal carcinoids (Wilander et al. 1979).

Normal endometrium has been shown to contain endocrine and argyrophilic glandular cells (Satake and Matsuyama 1987). These cells react immunohistochemically with somatostatin and serotonin. In addition, argyrophil granules were also observed in supra- and subnuclear zones in glandular cells. A light and electron microscopic study of human fetal endometrium has also found endocrine cells in the basal layers of the endometrium at a late gestational age (Wang 1989). Not only is there evidence that the endometrium is part of the dispersed or diffuse endocrine system in humans, but chromogranin- and somatostatin-positive neuroendocrine cells have been demonstrated in the endometrium of pigs (Vittoria et al. 1989). A variety of neoplasms of the uterus have been noted to contain endocrine cells (Bannatyne et al. 1983; Fetissof et al. 1987; Inoue et al. 1984; Scully et al. 1984). A carcinoid tumour of the endometrium has been described (Albores-Saavedra et al. 1979) and extension from such an origin into the myometrium would account for the intramuscular location of this tumour. The insular pattern and positive argentaffin reaction make this carcinoid similar to those encountered in the mid-gut. There is no obvious embryological link to explain these findings.

Carcinoid-like areas have been described in endometrial carcinoma (Wick et al. 1986). However, 75% of this tumour was composed of typical endometrial carcinoma and therefore it is felt that focal areas of adenocarcinoma would have been present on at least part of the three cores of the tumour. However, a microsocpic, asymptomatic endometrial carcinoma co-existing with a uterine carcinoid cannot entirely be excluded. If this were the case it would not detract from the diagnosis of a primary uterine carcinoid presenting as a discrete mass in the fundus.

A primary carcinoid tumour of the uterus with a mid-gut pattern should not be excluded on embryological grounds. The typical organoid pattern of mid-gut carcinoids has been noted in primary cervical carcinoids (Albores-Saavedra et al. 1976). A carcinoid tumour occurring in the uterus and presenting as a 12–14 weeks uteromegaly is described. The patient did not have symptoms of the carcinoid syndrome or clinical evidence of tumour elsewhere, thus favouring a primary uterine carcinoid tumour.

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