A CASE REPORT OF PHYLLOIDES TUMOR OF THE PROSTATE: REVIEW OF THE LITERATURE AND ANALYSIS OF BIZARRE GIANT CELL ORIGIN

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A case of phylloides tumor of the prostate in a 58-year-old male is presented. The tumor was composed of columnar cystic folds and pleomorphic stromal elements including bizarre giant cells. Electron microscopic examination, which was performed using specimens embedded in paraffin blocks, revealed that the bizarre giant cells originated from the smooth muscle. The postoperative course was uneventful, with no evidence of local recurrence or metastasis for more than 2 years after operation.

Key words: Phylloides tumor, Prostate, Smooth muscle

INTRODUCTION

Benign prostatic hypertrophy (BPH) is the usual name applied to a common condition of the prostate occurring in elderly individuals. BPH consists of hyperplasia of both the glandular epithelial and fibromuscular stromal components. The histological appearance varies according to the proportion of epithelial and stromal components, the size and composition of nodules, the arrangement and height of epithelial cells, and accompanying inflammatory changes. In contrast to BPH, hyperplastic and neoplastic glandular-stromal proliferations in the prostate that mimic phylloides tumor (cystosarcoma phylloides) of the female breast are extremely uncommon. Only a few cases of phylloides tumor of the prostate, two of which were malignant, have previously been reported[1-7].

We have recently experienced a case of phylloides tumor of the prostate, which we studied using an electron microscope to define the nature of the tumor.

A CASE REPORT

H.K., a 58-year-old male Japanese was referred to the Mishina Urological Office in August 1986 with a five-month history of pollakisuria and severe dysuria. Physical examination revealed marked distension of the lower abdominal region. Residual urine (750 ml) was obtained by catheterization. Rectal examination disclosed a symmetric, walnut-sized prostate with firm elasticity and smooth surface. Transrectal ultrasonotomogram and retrograde urethrocystogram (Fig. 1A) demonstrated a small tumor projecting into the bladder.

The tumor was easily removed using an open transvesical approach. The postoperative course was uneventful, and further review for more than 3 years after the operation showed no evidence of recurrence or metastasis.

PATHOLOGIC FINDINGS

The specimen from the operation consisted of a thumb-sized median lobe and two lateral lobes the size of the tip of the small

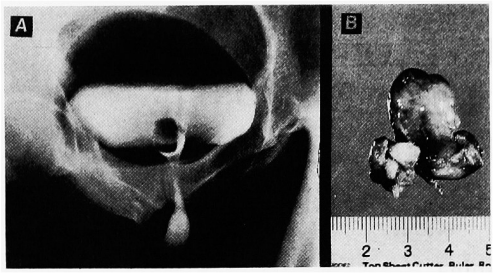

Fig. 1A. Urethrocystogram demonstrates a small tumor projecting into the bladder.
1B. The specimen from the operation consists of a thumb-sized median lobe and two lateral lobes the size of the tip of the small finger

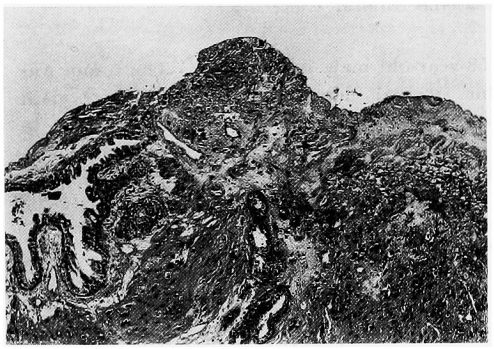

Fig. 2. Panoramic view shows irregularly branching and angulated glands surrounded by dense, cellular stroma. (H.E. ×40)

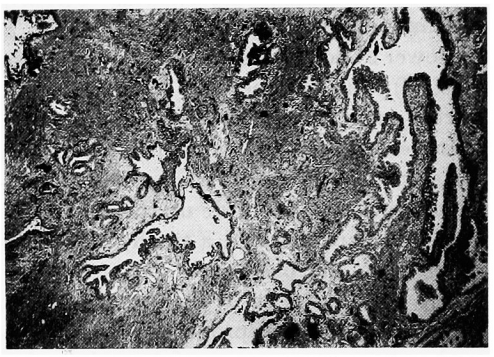

Fig. 3. The glands show cystically and papillary dilated structures. (H.E. ×40)

finger. These lobes, which were firm, consisted of gray nodular tissue and weighed a total of 3 g (Fig. 1B).

Microscopical examination revealed that both stromal and adenomatous elements increased in proportion to each other; the

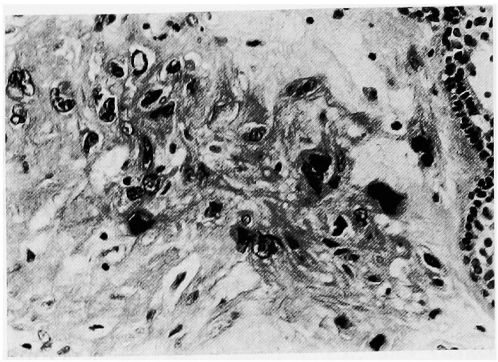

Fig. 4. Bizarre giant cells are encountered in the stromal elements, but mitotic figures are not recognized. (×400)

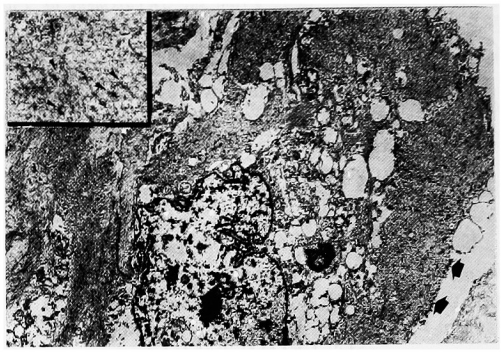

Fig. 5. The bizarre giant cell has a large folded nucleus, many actin filaments with focal density (arrowhead) in the cytoplasm, and "dense patches" (arrow) in the cell membrane. (×3,600, inset: ×9,000)

tumor consisted of angulated irregular glands (Fig. 2), some of which were cystically dilated and contained papillary structures (Fig. 3). Bizarre giant cells were encountered in the stromal elements, but mitotic figures were not recognized (Fig. 4). These histological findings are compatible with those of phylloides tumor, which is found in the female breast. Masson-Trichrome and Van-Gieson staining suggested that the bizarre giant cells originated from the smooth muscle. In addition, these bizarre giant cells showed positive staining by immunohistochemical studies using antibodies (DAKO Japan Co., Ltd.) against desmin and vimentin. Electron microscopic examination, which was performed using specimens embedded in paraffin blocks, confirmed that the bizarre giant cells originated from the smooth muscle; the bizarre giant

cells shown in Fig. 5 has a large convoluted nucleus, many actin filaments with focal density in the cytoplasm, and "dense patches" in the cell membrane. However, desmosomes were not found.

DISCUSSION

Phylloides tumor (cystosarcoma phylloides) of the prostate has been called by various names, such as cystoadenoleiomyofibroma, cystic adenoma[2] of the prostate[5], phylloides type of atypical prostatic hyperplasia[1,7],and cystic prostatic tumor[3,4]. Attah and Nkposong in 1976 stated that "the pleomorphism of the stromal element was of such a degree as to warrant the idea that the lesion was potentially malignant."[1] However, the patient was alive and well after 2.5 years. In 1977, Attah et al. reported three cases of atypical stromal hyperplasia of the prostate gland[8], one of which appears to be phylloides tumor. These cases are considered as benign tumors, since there is no evidence of recurrence or metastasis. By contrast, only two cases of malignant phylloides tumor have been reported, one by Gueft and Walsh[9], and the other by Yokota et al[10].

Phylloides tumor must be distinguished from benign prostatic hyperplasia (BPH), since both tumors are characterized by epithelial and stromal proliferation. Reese et al. have recently concluded in a report of three new cases of phylloides type of atypical prostatic hyperplasia that BPH lacks the histological atypia of the stromal cells seen in phylloides tumor[7].

Since phylloides tumor consists of bizarre cells characterized by cellular pleomorphism and multinucleated giant cells, it is difficult to distinguish between benign and malignant tumors. However, mitotic activity, dissociated growth of stroma and glands, and invasive tendency are thought to have prognostic value. In our case, there were very few mitotic figures, the tumor was expansive but not invasive, and no dissociated growth of stroma and glands was noted. Thus, we concluded that this tumor was benign. As the next step, the differentiation between phylloides tumor and bizarre (atypical) leiomyoma of the prostate should be made, since bizarre giant cells are found in both cases. Few cases of atypical leiomyoma of the prostate have previously been reported[11,12]. Atypical leiomyoma of the prostate is characterized by the proliferation of stroma elements including bizarre giant cells, which results in the compression of adenomatous components. However, phylloides tumor is characterized by the intermingled proliferation of stromal and adenomatous components, including bizarre giant cells in the stroma. In our case, both components were found to have increased in proportion to each other, leading to a diagnosis of phylloides tumor of the prostate.

Phylloides tumor in the breast has recently been reported to be a smooth muscle tumor, or one of myoepithelial origin[13]. However, other authors have described the neoplastic cells in the phylloides as fibroblasts that can occasionally show myofibroblastic differentiation[14]. It is therefore of interest to clarify the origin of the bizarre giant cells in phylloides tumor of the prostate. In the present study, we have demonstrated using an electron microscope that the bizarre giant cells originate from the smooth muscle, as shown in Fig. 5. In addition, immunohistochemical studies using vimentin and desmin confirmed this. Since desmosomes were not found in the giant cells, it seems unlikely that the cells are epithelial cells in origin. However, the possibility still remains that smooth muscle cells and fibroblasts are interchangeable under special conditions, especially in cases of neoplastic transformation.

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和文抄録

前立腺に発生した phylloides tumor の一症例

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症例は58歳の男性，1986年8月，5年間続いた頻尿と高度の排尿障害のため三品泌尿器科を受診．直腸診にて，弾力硬，表面平滑な，くるみ大の左右対照的な前立腺を触知，経直腸的超音波断層撮影と逆行性尿道膀胱造影により膀胱内への小腫瘤の突出を確認し手術．

腫瘍は，円柱上皮から成る cystic な腺成分の増生と巨細胞の混在した異型のある間葉系細胞の増生を認め phylloides tumor と診断．戻し電顕の結果，巨細胞は平滑筋由来であることが判明．術後3年以上経過するも経過は良好．前立腺に発生した phylloides tumor の症例を review し，病理学的鑑別診断の要点を明らかにする．

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