

## Spermatic Cord Metastases from Gastric Cancer with Elevation of Serum hCG- $\beta$ : A Case Report

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Spermatic cord metastases from gastric cancer are rare. We here document a case involving a gastric cancer that mimicked primary testicular tumor because of elevation of the serum human chorionic gonadotropin-beta (hCG- $\beta$ ). The possibility of metastasis or recurrence of prior malignancies should therefore be considered when the clinical features described here are encountered, although elevation of hCG- $\beta$  is rare with tumors other than those in testis.

*Key words: spermatic cord – metastasis – human chorionic gonadotropin- $\beta$  – gastric cancer*

### INTRODUCTION

Metastatic tumors of the spermatic cord are rare. Elevation of the serum level of human chorionic gonadotropin- $\beta$  (hCG- $\beta$ ) is generally indicative of a testicular tumor. However, we have encountered a case of spermatic cord metastases from a gastric cancer featuring an increase in serum hCG- $\beta$ . We here document our findings and the literature for such cases.

### CASE REPORT

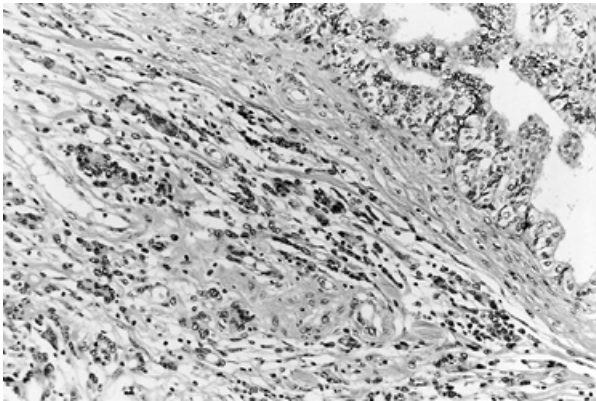
A 51-year-old male underwent surgery for a Borrmann III type stomach cancer. Histologically, poorly differentiated adenocarcinoma, featuring variant signet ring cell, mucinous elements and lymph node metastasis was revealed. UFT was administrated for post-operative adjuvant therapy. After 9 years, facial edema, increase of body weight and swelling of the left scrotum without pain or fever appeared. Computed tomography revealed right hydronephrosis, ascites and a mass lesion in the right pelvic cavity associated with peritoneal dissemination of prior gastric cancer. Although left hydrocele testis was also observed, an intrascrotal solid tumor remained after aspiration. Serum LDH was within the normal range, but hCG- $\beta$  and CA19-9 were elevated (9.48 ng/ml and 6411.2 U/ml, respectively). A particularly high value for hCG- $\beta$  was also found in hydrocele fluid (83.2 ng/ml). Since the elevation of CA19-9 implied recurrence of gastric cancer, but a primary



**Figure 1.** A 2.5  $\times$  1.5  $\times$  1.5 cm solid tumor on the spermatic cord. The spermatic cord tumor had invaded the epididymis and parietal tunica vaginalis. Testis was clearly separated from the tumor.

testicular tumor was also suspected because of intrascrotal tumor unrelated to the pelvic mass and the elevation of hCG- $\beta$ , we performed left high orchiectomy. Grossly the surgical specimen was a spermatic cord tumor. The tumor had invaded the epididymis and parietal tunica vaginalis. Testis was clearly separated from the tumor (Fig. 1). Hematoxylin and eosin staining and PAS staining revealed it to be an invasive mucinous adenocarcinoma (Fig. 2), with histochemically demonstrable hCG- $\beta$  positive foci (Fig. 3A). The prior gastric cancer tissue also had hCG- $\beta$  positive foci (Fig. 3B). These indicated recurrence of gastric cancer in the pelvic cavity and the left spermatic cord. Chemotherapy with 5-FU and methotrexate was transiently effective, but the patient died 1 year later.

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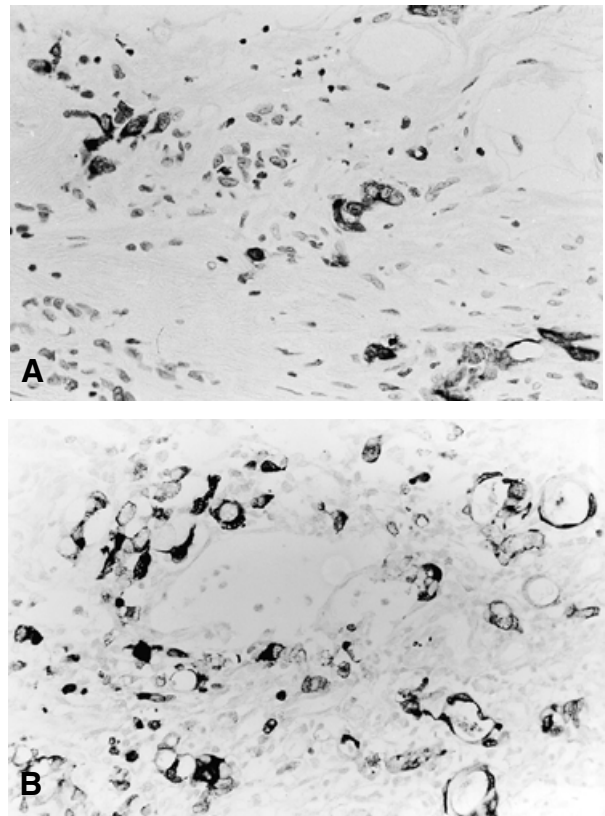
**Figure 2.** Hematoxylin and eosin staining of the spermatic cord tumor revealing adenocarcinoma features with scirrhoid invasion and ductal formations ( $\times 200$ ).

## DISCUSSION

The major primary sites for metastatic spermatic cord tumors are considered to be the colon, stomach and pancreas (1). Kanno et al., however, reported that the most frequent primary site was the stomach (70.4%) in Japan (1). In the present case, the diagnosis of recurrence of the prior gastric cancer was relatively simple on the basis of the mass lesion in the pelvic cavity and the elevation of serum CA19-9. However, the scrotal tumor with elevation of serum hCG- $\beta$  pointed to a primary testicular tumor.

It is well known that serum  $\alpha$ -fetoprotein (AFP), hCG- $\beta$  and LDH are elevated with testicular tumors. These biomarkers are useful not only for diagnosis but also for the evaluation of the efficacy of treatments. Elevation can also occur in some situations, including tumor destruction, iatrogenic hypogonadism and hepatic dysfunction, but an increase in hCG- $\beta$  is rare with tumors other than those in the testis. Gastric cancer is one of the few exceptions that is relatively frequently associated with increased blood levels of hCG (2). Thus 10.5–23.5% of patients have been found to demonstrate immunoreactive hCG (2,3), although this is not used as a marker for gastric cancer at present. It is reported that 50.8% of gastric cancers are immunoreactive for hCG- $\beta$  with no significant difference between early and advanced lesions (4). Retrospectively, we examined the binding of antibody to hCG- $\beta$  in the prior gastric cancer tissue in the present case and also detected hCG- $\beta$ -positive foci (Fig. 3B).

Only one case of primary leiomyosarcoma of the spermatic cord has been reported to be positive for hCG- $\beta$  (5) and, to our knowledge, this is the first description of a metastatic tumor at this site with elevation of hCG- $\beta$ . As demonstrated here, the possibility of metastasis or recurrence of prior malignancies



**Figure 3.** (A) Histochemical staining revealed hCG- $\beta$ -positive foci in the spermatic cord tumor ( $\times 320$ ). (B) hCG- $\beta$ -positive foci were also observed in the prior gastric cancer tissue featuring signet ring cell and mucinous elements ( $\times 400$ ).

should also be considered when a palpable tumor is identified in the scrotum, even when a rise in serum hCG- $\beta$  is apparent.

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## References

1. Kanno K, Ohwada S, Nakamura S, Ohya T, Iino Y, Morishita Y, et al. Epididymis metastasis from colon carcinoma: a case report and a review of the Japanese literature. *Jpn J Clin Oncol* 1994;24:340–4.
2. Braunstein GD, Vaitukaitis JL, Carbone PP, Ross GT. Ectopic production of human chorionic gonadotrophin by neoplasms. *Ann Intern Med* 1973;78:39–45.
3. Rosen SW, Weintraub BD, Arronson SA. Nonrandom ectopic protein production by malignant cells: direct evidence *in vitro*. *J Clin Endocrinol Metab* 1980;50:834–41.
4. Fukayama M, Hayashi Y, Koike M. Human chorionic gonadotropin in gastric cancer. An immunohistochemical study suggesting independent regulation of subunits. *Virchows Arch A* 1987;411:205–12.
5. Seidl C, Lippert C, Grouls V, Jellinghous W. Leiomyosarcoma of the spermatic cord with paraneoplastic beta-hCG production. *Pathologie* 1998;19:146–50.