

## An Autopsy Case of a Large Pelvic Fibroma and its Medical Relation to the Cause of Death

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### Abstract

**Background:** We herein describe an elderly female who died from lying in a prone position with a large pelvic tumor. We examined the tumor and investigated the cause of death.

**Case report:** A female in her early 70s was found dead in a prone position. Her height and weight were 149 cm and 47.5 kg, respectively. Her abdomen was slightly distended, and the abdominal wall was hard. Her diaphragm was elevated. Small bubble foam was noted in the tracheobronchial area. Her heart weighed 278 g. No stenosis was observed in the coronary arteries. Neither an obvious scar nor a hemorrhage was observed in the myocardia. A large tumor was detected near the left ovary that measured 24.2×21.4×7.3 cm and weighed 2058 g. The surface of the tumor was a mixture of hard and soft areas and had vacuoles. The cut

surface showed grayish white fibrous tissue with nodal lesions. The tumor contained collagen fibers. Immunohistochemically, vimentin and  $\alpha$ -inhibin were positive.

**Conclusion:** Based on these findings, the tumor was diagnosed as a fibroma. She appeared to have died from lying in a prone position with a large pelvic tumor, and hypotensive syndrome may have been caused by the inferior vena cava compression by the large pelvic tumor. In the cases of patients who have large pelvic tumors, they need much care to prevent conditions such as hypotensive syndrome.

**Keywords:** cause of death, hypotensive syndrome, positional asphyxia, large fibroma, immunohistochemistry, forensic autopsy.

## INTRODUCTION

Fibromas are rare tumors that consist of dense collagen bundles and a varying number of mature fibroblasts (1–3). They are generally small tumors that are firm, encapsulated, and pearly gray on cross section (4).

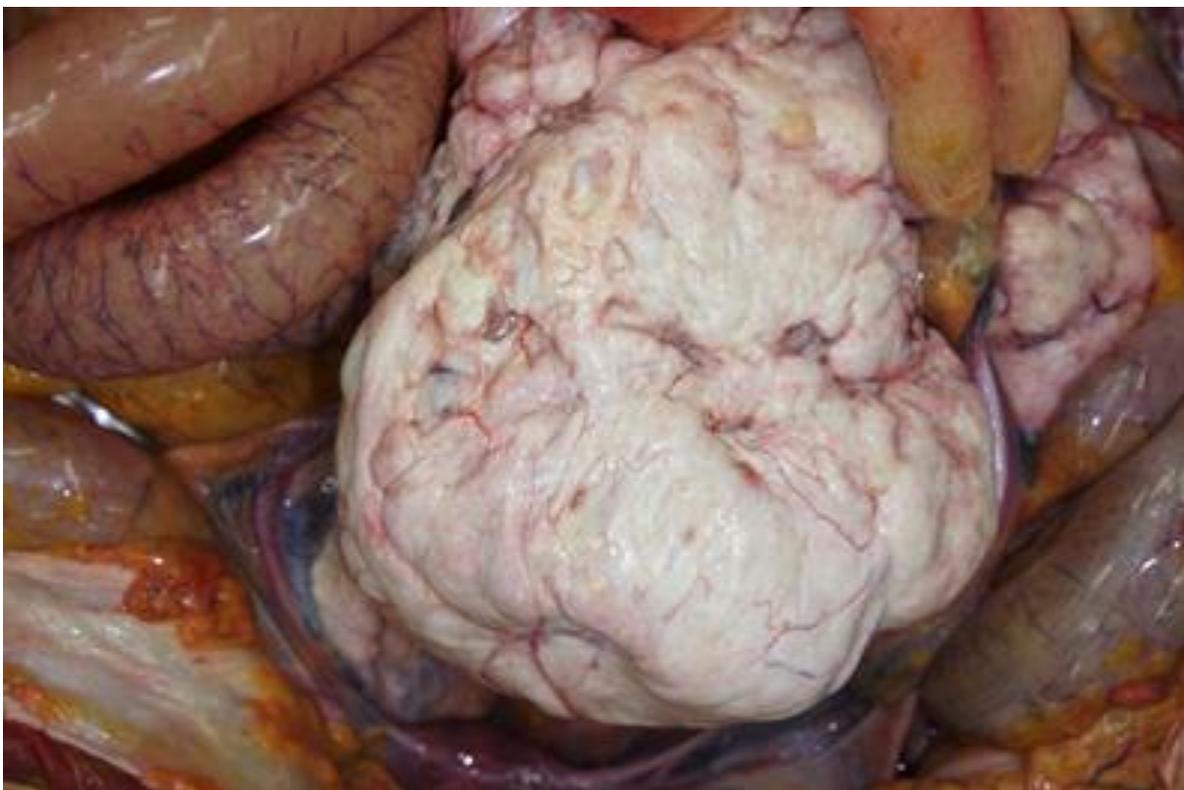
Primary peritoneal, omental, and mesenteric tumors are also rare (2). Large pelvic masses in women may originate from the uterus, cervix, ovaries, fallopian tubes, peritoneum, or retroperitoneum. The majority of large pelvic masses in female patients are commonly encountered entities such as uterine fibroid tumors, dermoid tumors, ovarian cysts, and ovarian cancer (5).

We herein describe an elderly female who died

from lying in a prone position with a large pelvic tumor. We examined the tumor and investigated the cause of death.

## CASE REPORT

A female in her early 70s was a resident at a nursing home, because of schizophrenia. At midnight, a staff member on a routine check observed her lying in a prone position on a mattress on the floor beside her bed in her room. Since she was found lying in the same position two hours later, staff attempted to move her and found that she had died. The height of her bed was 30 cm, and the mattress on the floor was 10 cm thick. This mattress was placed on the floor for her safety, because she could not move well



**Figure 1.** Tumor in the pelvic cavity

by herself, and because it was difficult for her to change positions, she frequently fell from the bed.

#### *Clinical History*

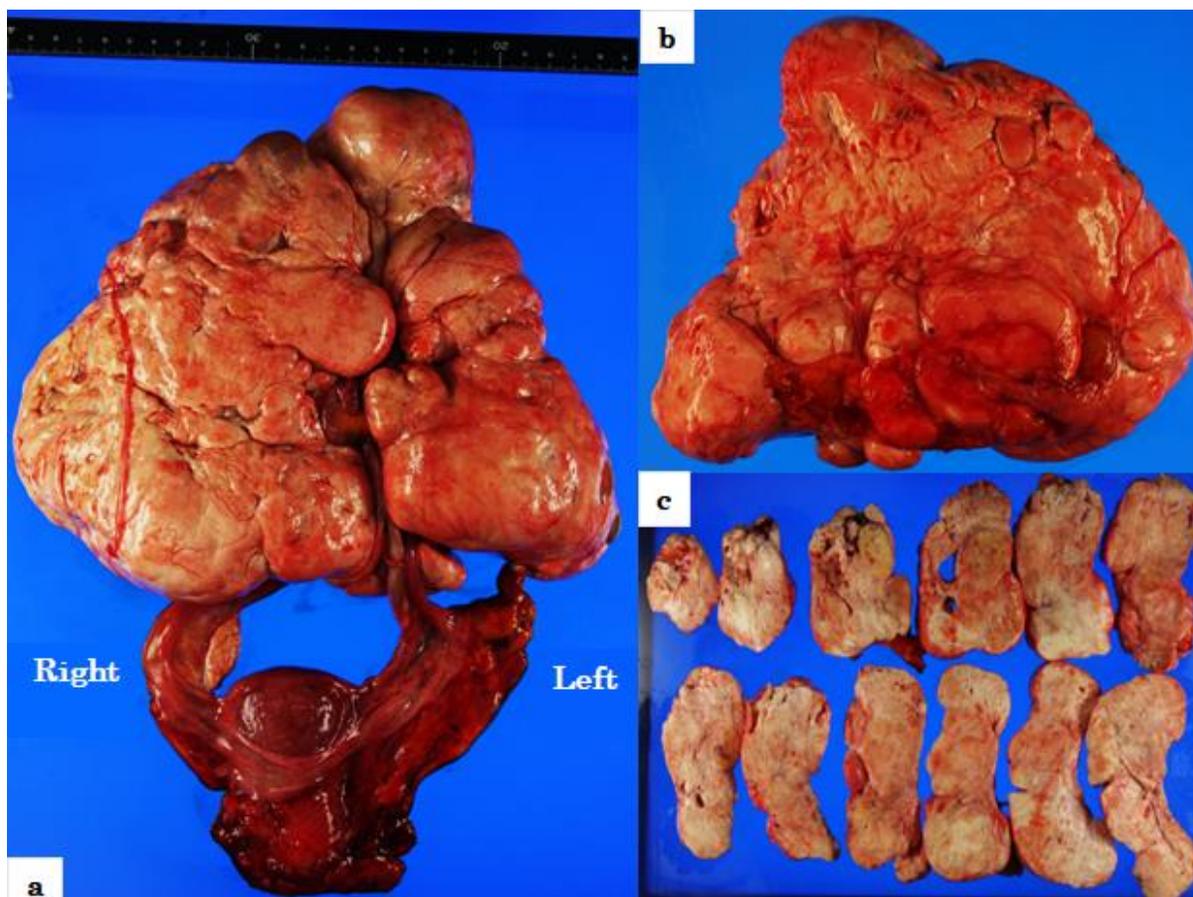
Schizophrenia (45 years); Hypertension (17 years); Ovarian tumor (7 years)

She had been treated with vasodilator and antianxiety medications.

#### *Autopsy Findings*

Her height and weight were 149 cm and 47.5 kg, respectively. Her abdomen was slightly

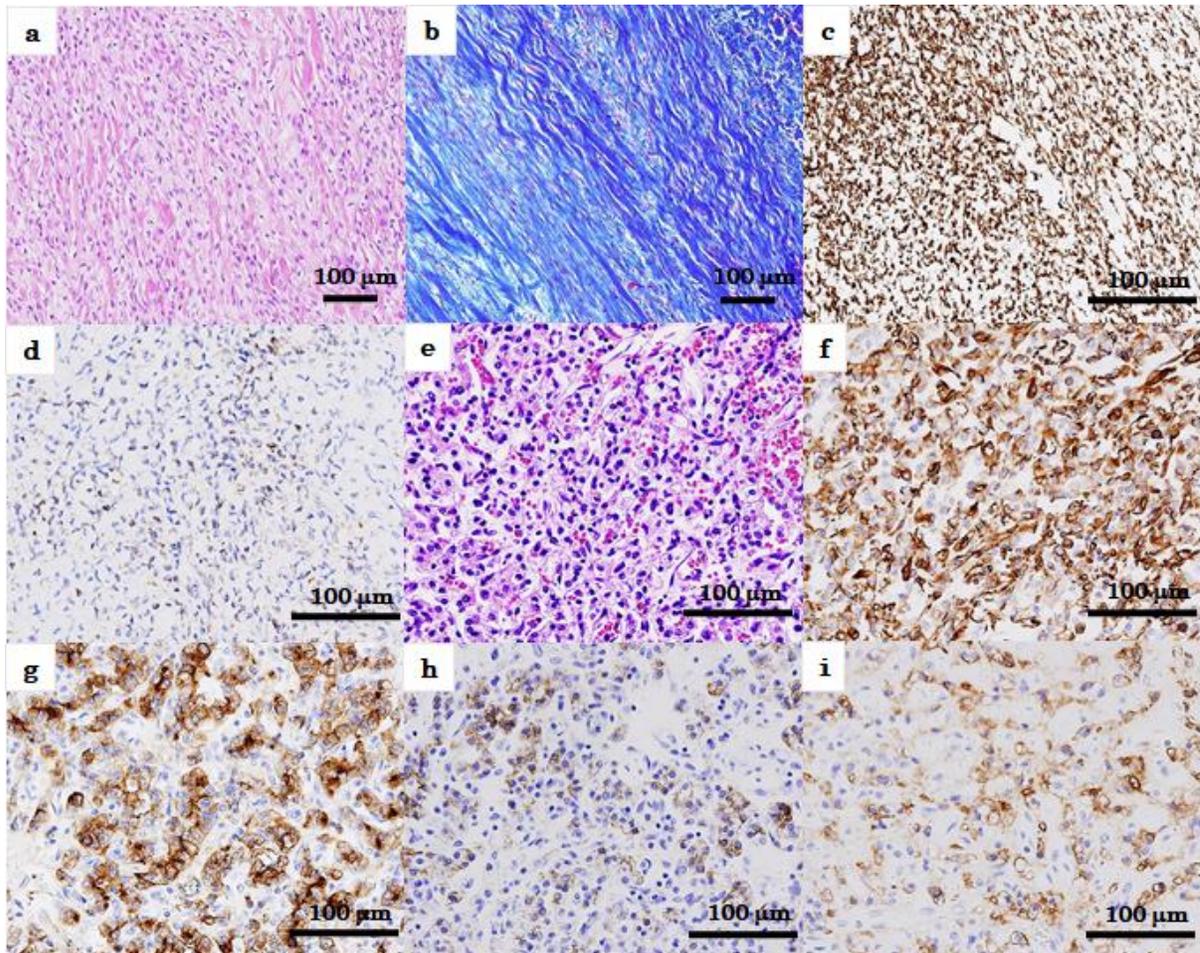
distended, and the abdominal wall was hard. Her finger nails were cyanotic. There was discoloration around her right eye. Hemorrhaging, 5.8×7.2 cm in size, was observed under the subcutaneous tissue and periosteum of the forehead. There were no intracranial injuries. Hemorrhage was observed at the edge of the mastoid process of the right sternocleidomastoid muscle and center of the right sternothyroid muscle. Her diaphragm was at the 4th intercostal space on the left side and at the 3rd intercostal space on the right. Her heart weighed 278 g without stenosis in coronary arteries, obvious



**Figure 2.** Tumor in the pelvic cavity; a: pelvic tumor connected to the parametrium by restiform tissues; b: the surface of the pelvic tumor; c: the cut surface of the pelvic tumor

scar or a hemorrhage in the myocardia. Small bubble foam was noted in her tracheobronchial area. There were no positional abnormalities of the organs in the abdominal cavity. However, a large tumor was detected in the lower abdomen (Fig. 1).

24.2×21.4×7.3 cm, and weighed 2058 g. Although there were no adhesions to other organs or tissues, the tumor was connected to the parametrium by restiform tissues (Fig. 2a). The surface of the tumor was a mixture of hard and soft areas and had vacuoles that contained liquid



**Figure 3.** Pathological findings; a-d: fibroma; a: Hematoxylin-eosin stain (HE); b: Azan stain; c: vimentin; d: Ki-67-inhibin; e-i: clear cell renal cell carcinoma (ccRCC); e: HE; f: vimentin; g: CD10; h: CK AE1/AE3; i: EMA

The peritoneum adhered to the greater omentum. The abdominal cavity contained 150 mL of a light yellow fluid. Her ovaries had atrophied and there was a large tumor near the left ovary. The tumor was grayish yellow, measured

(Fig. 2b). The cut surface showed grayish white fibrous tissue and some nodal lesions. Some soft areas and hemorrhages were also observed (Fig. 2c). A tumor the size of the tip of an index

finger was detected on the inferior pole of the left kidney.

#### *Histopathological Findings*

The pelvic tumor contained an abundant amount of collagen fibers and congestion was revealed by Hematoxylin-Eosin and Azan staining (Fig. 3a, b). Immunohistochemically, EMA, S100 protein, CD34, c-kit, desmin, myoglobin,  $\alpha$ -SMA, and calretinin were negative, while vimentin was positive and  $\alpha$ -inhibin was focal and weakly positive (Fig. 3c, d).

The tumor on the left kidney was composed of a clear cytoplasm, densely stained nuclei, and a rich capillary network (Fig. 3e).

Immunohistochemically, vimentin, CD10, CK AE1/AE3, and EMA were positive (Fig. 3f-i).

In other organs, renal arteriolosclerosis, cerebral edema, and pulmonary emphysema were observed. No significant pathological changes were founded.

#### *Ethanol Concentration*

An ethanol analysis was performed using the headspace gas chromatography – flame ionization detection (HS-GC-FID) method (6).

Ethanol concentrations in blood and urine samples were <0.005 and 0.02 mg/ml, respectively.

#### *Toxicological Examination*

An analysis of blood samples using gas chromatography-mass spectrometry (GC-MS)

and liquid chromatography with tandem mass spectrometry (LC-MS/MS) detected diltiazem, lorazepam, and desmethyldiazepam at 41, 24, and 36 ng/mL, respectively. These vasodilator and anti-anxiety medications were all within therapeutic ranges (7–9).

## **DISCUSSION**

The pelvic tumor was observed with various cell marker antigens immunohistochemically. Alpha-inhibin and calretinin may be employed to demonstrate ovarian derivation;  $\alpha$ -SMA and desmin for differentiation from smooth muscle tumors; and c-kit, CD34, and S100 for differentiation from gastrointestinal stromal tumors (GIST) (1). Alpha-inhibin is immunopositive in the thecoma and desmoma, but not in the myoma. In the present case, histopathological and immunohistochemical examinations revealed that the tumor contained an abundant amount of collagen bundles and mature fibroblasts. Fibromas are well-circumscribed tumors consisting of dense collagen bundles and a varying number of mature fibroblasts. Based on these findings, the pelvic tumor was diagnosed as a fibroma (1–3,10). The renal tumor was diagnosed as clear cell renal carcinoma (ccRCC) based on histopathological and immunohistochemical findings.

Fibromas are generally small tumors that are firm, encapsulated, and pearly gray on cross section (4). The majority of large pelvic masses

in female patients are commonly encountered entities such as uterine fibroid tumors, dermoid tumors, ovarian cysts, and ovarian cancer (5). She had a previous history of an ovarian tumor; however, the pelvic tumor may have been misdiagnosed as an ovarian tumor at that time. Both ovaries were normal, and there were no positional abnormalities of or lesions on the intra-abdominal organs, except for a tumor on the left kidney detected in the autopsy. The pelvic tumor was connected to the parametrium by restiform tissues. Therefore, the rare large pelvic fibroma may have originated from the peritoneum.

The cause of death was investigated. From macro- and microscopic findings, any natural cause of deaths was not considered, except for a sudden cardiac death such as arrhythmia. Dyspnea was suspected based on the cyanosis of her finger nails, hemorrhage in the right sternocleidomastoid and sternothyroid muscles, bubble foam in the tracheobronchial area, and pulmonary emphysema. Since her diaphragm was elevated at the 4th intercostal space on the left side and at the 3rd intercostal space on the right, the large pelvic tumor may have increased abdominal pressure when she fell from her bed, resulting in dyspnea.

Trauma to the face was considered to have occurred due to a fall face-down onto the floor from the bed. The large pelvic tumor may have increased abdominal pressure following the fall from the bed, resulting in dyspnea. Furthermore, the tumor compressed the inferior vena cava and

caused hypotensive syndrome. Some cases of compression of the inferior vena cava related to intra-abdominal tumors have been reported (11,12). In the present case, hypotensive syndrome may have been caused by the inferior vena cava compression by the large pelvic tumor (13,14,15).

In conclusion, death in the present case was attributed to lying in a prone position with a large pelvic tumor. In the cases of patients who have a large pelvic tumor, they need much care, such as the prevention of hypotensive syndrome.

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