An Adolescent Female With Bulging Abdomen

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Clinical History

The patient is a 12-year-old Mexican female 3 years postoperative ovarian tumor resection with 1 month of radiation therapy in Mexico. Diagnosis of ovarian tumor was made when she presented with abdominal pain and weight loss. She did well after therapy until 6 months prior to admission, when she developed crampy lower-abdominal pain and epigastric fullness after meals. She had experienced bouts of hematuria and dysuria, and was absent of secondary sex characteristics. She lost 6.8 kg 1 month prior to admission, when she developed nausea and vomiting following intake of solid foods and began taking only liquids.

Physical Examination

On admission the following were revealed: blood pressure, right arm, 110/74 mm Hg; pulse, 78; temperature 98.6ºF; and labored respiration rate of 22 beats per minute. She had shifting dullness, “fluid thrill” or “fluid wave,” and tenderness over the left abdomen consistent with ascites. In addition, she had percussion dullness at both lung bases and labored breathing.

Laboratory Results

Hemoglobin was 12, hematocrit, 31, with normal differential. Urinalysis was pending.

Radiographic Findings

Posterior-anterior chest radiograph (Figure 1) displayed the forward-rotated round shoulders, drooping left as compared to the right; anterior-rotated heads of the clavicles low over the posterior fifth intercostal spaces reflecting the forward shift of the cervicothoracic spine; asymmetric elevated dome of the shift of the diaphragm, right greater than left; obscure cardiophrenic sulci; sharp angulated costophrenic sulci reflecting bilateral pleural effusions, right greater than left, and metal clips over the lower abdomen.¹

The lateral chest radiograph (Figure 2) cross-referenced the posterior-anterior chest radiograph to display the increased anterior-posterior diameter of the abdomen; forward shift of the cervicothoracic spine (round shoulders); anterior and posterior shallow sulci reflecting bilateral pleural effusions; sutures over the anterior abdominal wall, and narrow subcutaneous tissues.

An intravenous pyelogram (IVP) was obtained to evaluate the kidneys. The anterior scout radiograph of the abdomen (Figure 3) displayed the lateral displacement of the descending colon, suggesting a possible retroperitoneal mass accentuating feces within the proximal transverse colon. A 30-minute postcontrast injection radiograph (Figure 4) displayed contrast within the left kidney, not within the right kidney. Contrast in the left kidney displayed the lateral displaced on-end renal pelvis, lateral-rotated major calyces and mild dilatation of the renal papillae, the on-end lateral displaced ureter crossing the inferior pole of that kidney, and psoas major muscle into the bladder.

A delayed 1-hour anterior-posterior abdominal radiograph (not demonstrated) displayed residual contrast within the lateral displaced left kidney but not in the right kidney.

Impression

(1) large retroperitoneal abdominal mass, as above.
(2) nonfunctioning right kidney secondary to the invasion of the renal vasculature or long-term obstruction of the ureter with destruction of the renal parenchyma on the right side;
(3) bilateral large pleural effusions, right greater than left;
(4) bilateral atelectatic changes secondary to the pleural effusions and ascites; and
(5) asymmetric round shoulders as above.

Special Procedure

A thoracentesis under fluoroscopic control was requested: 20-30 cc of serous fluid was removed and sent to the pathology for cytology and cultures.

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DIAGNOSIS

Cytology confirmed metastatic dysgerminoma.

DISCUSSION

Dysgerminoma is the female counterpart of seminoma. The most common route of spread is by way of retroperitoneal, mediastinal, and supraclavicular fossa lymphatic drainage. The tumor occurs most frequently during the reproductive ages, not only primary within the ovaries but as a primary foci in the mediastinum. The recommended therapy years ago favored tumor resection and offered few choices. If the tumor was less than 10 cm and showed no capsular invasion and if the patient desired to maintain the reproductive function, a simple oophorectomy without postoperative radiation may have been performed. In all other cases of the disease confined to the pelvis and abdomen, a total abdominal hysterectomy and bilateral salpingo-oophorectomy (TAH-BSO) followed by 2500-3000 rads to the entire abdomen with appropriate blocks were administered. Multimodal therapy in the last 15 years has offered an alternative and a different outlook and therefore a choice of therapy. Multimodal treatment generally consisted of surgery and radiotherapy for dysgerminoma with the addition of chemotherapy for the nondysgerminoma. Survival depended on the stage and histological appearances of the tumor. Interinstitutional and international cooperation improved the survival and lowered the morbidity of treatment. Dysgerminoma of the ovary, as compared to other malignant germ cell tumors, have a high sensitivity to radiotherapy. Multimodal therapy is also similar to testicular seminomas in that they are very sensitive to chemotherapy.

Patients in whom the disease is at advanced stages have a poor prognosis, as suggested in our patient, irrespective of histological features. The choice of therapy is based on risk-benefit evaluations of the roles of surgery,
irradiation, and chemotherapy, since all 3 modalities have their associated morbidities. In our patient, the initial presenting complaints and treatment were not clear. Weight loss, bilateral pleural effusion, ascites, and positive cytology clouded her projected survival.

Although the parents were made aware of our findings, she was lost to follow-up after discharge to her treating physician.

Take-Home Message

The clinical history is key to understanding the clinical problems patients present post-surgical resections. The simple request of posterior and lateral chest x-rays of a patient with suspected pleural effusions might lead to obtaining a specimen for a conclusive diagnosis. A lateral decubitus chest radiograph may have helped to confirm the suspected pleural fluid. The history of hematuria and dysuria pointed to the need to evaluate the genitourinary system on an IVP. Certainly ultrasound and computerized procedures would have offered additional diagnostic information. However, the chest radiographs suggested pleural effusions that warranted a simple inexpensive thoracentesis of the thorax to make the diagnosis.

REFERENCES


Figure 3. Scout anterior-posterior radiograph of the abdomen intravenous pyelogram that displays lateral displacement of descending colon (3 small arrows), suggesting a possible mass accentuating feces within the right transverse colon.

Figure 4. Thirty-minute post-contrast injection radiograph displaying the lateral displacement of the left kidney (2 large arrows). Contrast is displayed in the on-end lateral displaced renal pelvis (P) with mild dilatation of the renal papillae (3), lateral rotated major (1) and minor (2) calyces (1), lateral displaced ureter (3 small arrows) crossing the inferior pole of the left kidney, and the psoas major muscle (not labeled) into the hazy contrast marginating the bladder (B).

Abbreviations: F, femur; IC, iliac crest; L3, third lumbar vertebrae; L5, fifth lumbar vertebrae.