

FORAMEN OF MORGAGNI HERNIA

DIAGNOSED BY LIVER SCAN

Charles D. Soucek

Bethany Medical Center, Kansas City, Kansas

A case of foramen of Morgagni hernia (partial eventration of the right diaphragm) containing liver was diagnosed by hepatic scintiphotography. Diagnostic pneumoperitoneum has been recommended as the procedure of choice in the past. It is suggested that this be replaced by liver scanning. The similarity between eventration of the right diaphragm and foramen of Morgagni hernia is discussed.

Occasionally a patient will present with a parasternal mass in the right cardiophrenic angle. The differential diagnosis of this mass includes pericardial cyst, foramen of Morgagni hernia, and various types of lung and mediastinal tumors. In a certain number of these cases there is a weakness of the diaphragm in the region of Larrey's space and a bulge will occur in this location with a portion of the liver extending up into the mass. Some of these cases have been reported as hepatic herniation through the foramen of Morgagni. Vogl and Small, (1) however, reported a series of six cases of partial eventration of the right diaphragm, all of which were diagnosed by surgery. Five of these eventrations were in the anterior portion of the right cardiophrenic angle. These cases were all collected in a period of less than 1 year in one hospital. Ravitch and Handelsman (2) reported five cases of eventration in the right cardiophrenic angle. The presence of liver in all their eventrations was established by pneumoperitoneum. The ability of two authors to collect this number of cases in a short period of time suggests that this is not a rare entity. Only a few cases that have been diagnosed by liver scan are reported in the literature. Inasmuch as liver scintiphotography is less dangerous and less traumatic to the patient, this procedure is recommended for the diagnosis of partial eventration of the diaphragm or Morgagni hernia with herniation of the liver rather than either pneumoperitoneum or surgical exploration. Pneumoperitoneum is not always successful inasmuch as air

may not enter the hernial sac (1). This case demonstrates the utility of the liver scan in diagnosing this problem.

METHODS

The patient was given 1 mCi of ^{99m}Tc -sulfur colloid intravenously and approximately 1 hr later anterior, right lateral, and posterior scintiphotos of the liver were obtained and recorded both on Polaroid film and on the Ohio-Nuclear Series 150 data system. A transmission scintiphoto was obtained also and stored in the data system for localization. The transmission scintiphoto was then used for localizing the hepatic outline with respect to the parasternal mass.

CASE HISTORY

KP is a 2-year-old black girl who demonstrated no abnormalities at birth and was dismissed as a

Received Aug. 14, 1974; original accepted Oct. 31, 1974.

For reprints contact: Charles D. Soucek, Nuclear Medicine Dept., Bethany Medical Center, 51 N. 12th St., Kansas City, Kans. 66102.

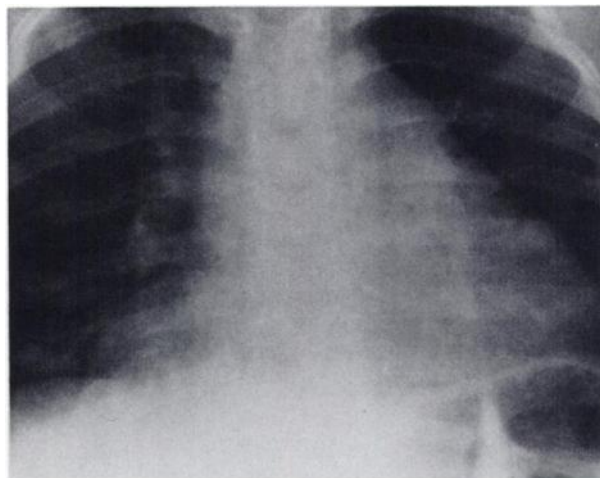


FIG. 1. Anteroposterior chest film. Spherical mass is demonstrated in right cardiophrenic angle.

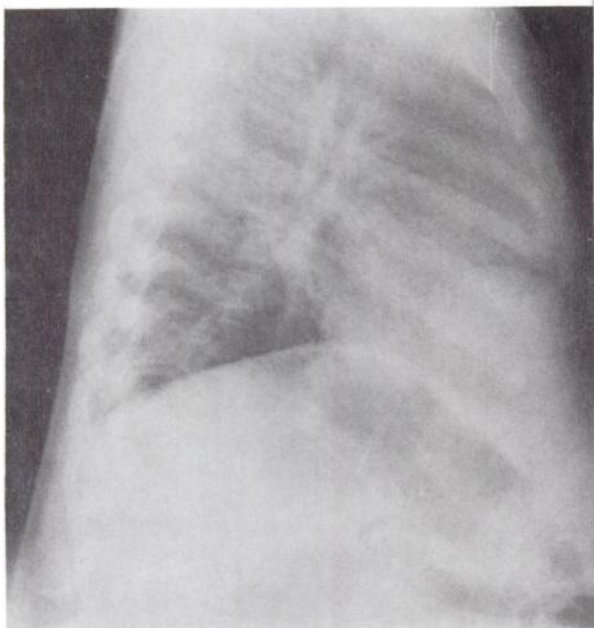


FIG. 2. Lateral film of chest.



FIG. 3. Anterior view of liver demonstrating rounded mass of hepatic tissue on upper surface of liver.



FIG. 4. Transmission scintiphoto of upper abdomen and lower thorax.

normal healthy infant. The patient was then re-admitted at the age of 2 years because of asthma and asthmatic bronchitis. Wheezing started on the day of admission and an admission chest x-ray film demonstrated a spherical mass in the right cardiophrenic angle that measured approximately 5 cm in diameter (Figs. 1 and 2). The history and physical findings were not otherwise remarkable and the laboratory findings were also within normal limits. A liver scan was then performed with ^{99m}Tc-sulfur colloid. This liver scan demonstrating liver tissue in the area of the mass was interpreted as a herniation of a portion of the liver through the foramen of Morgagni (Fig. 3). A transmission scintiphoto was then recorded on the data system (Fig. 4) and the hepatic scintiphoto was subtracted from the transmission scintiphoto (Fig. 5). No operative repair was performed. The patient was dismissed with prescriptions for asthma medications.

DISCUSSION

A large number of cases of partial eventration of the right diaphragm have been described in the literature and at least one author has collected five cases within a period of less than 1 year. There is a marked tendency for partial eventration of the right diaphragm to occur in the right cardiophrenic angle anteriorly. This is in the region of Larrey's space and suggests that this propensity is due to the natural weakness of the diaphragm in this area. A number of cases have been reported as Morgagni hernias containing liver and these cases are radiographically indistinguishable from partial eventration (3-5). Distinction between these two entities seems to be somewhat indefinite and depends on whether or not microscopic examination reveals muscle fibers in the

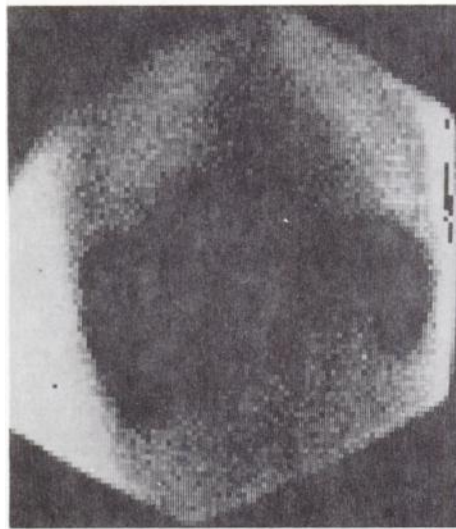


FIG. 5. Transmission scintiphoto with liver subtracted to show relationship of mass to heart.

biopsy and also on the size of the opening. Carter (6) states that in practice, distinction is not important and that muscle fibers need not be present in the sac of an eventration (7). If those cases reported as partial eventration of the diaphragm actually represent hernias, then foramen of Morgagni hernias are not as rare as the literature would suggest. Multiple other names have been used for diaphragmatic weakness or eventration in this area such as subcostosternal diaphragmatic hernia (5), diaphragmatic deficiency in the retrocostoxiphoid area (8), parasternal diaphragmatic hernia (9), and accessory lobe of the liver (10).

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