Two-dimensional echocardiography with color Doppler has been suggested to be the most accurate examination for the detection of a pseudoaneurysm.\(^5\) The diagnosis relies on the demonstration of an additional cavity adjacent to the ventricle, with a narrow connection between them. Pulsed or continuous-wave Doppler can show bidirectional flow from and toward the ventricle. Color flow can provide additional information about the direction of the jet, the presence of multiple orifices, and in some cases, it can be the only method to diagnose such a complication.\(^5\)

Pseudoaneurysms have a well-recognized propensity to rupture; nevertheless, this complication has not yet been documented in those occurring in the right ventricle. This might be due to the lower pressures in the right ventricle compared with the left, but alternatively, it may be due to the fact that right ventricular pseudoaneurysms are extremely infrequent. Other reported complications are systemic embolism and heart failure.

This presentation of right ventricular pseudoaneurysm, although rare, deserves considerable interest, since it was caused by endomyocardial biopsy. Endomyocardial biopsy is currently a routine procedure for the follow-up of patients who have undergone heart transplantation. It is also widely used for diagnosis of diseases of the heart muscle. The incidence of complications is low, but in case of perforation, assessment of the site of rupture should be carefully performed to rule out a pseudoaneurysm.

### References


### Bronchogenic Carcinoma Presenting as a Pseudopregnancy*

Deborah Manzi, MD; Bernard Greenberg, MD; Donald Maier, MD; Forouhar Forouhar, MD; and Carl D. Malchoff, MD, PhD

A young woman with an occult bronchogenic carcinoma presented with secondary amenorrhea and an elevated beta subunit of human chorionic gonadotropin that was mistakenly attributed to pregnancy. Physicians should be aware that this carcinoma may present solely with an elevated beta human chorionic gonadotropin value, and the potential exists for confusion with a pregnancy state in women of childbearing age.

*(Chest 1995; 107:567-69)*

\[\beta\text{-hCG}=\beta\text{human chorionic gonadotropin}\]

**Key words:** beta human chorionic gonadotropin; bronchogenic carcinoma; pseudopregnancy

*Bronchogenic carcinoma has recently surpassed breast cancer as the leading cause of cancer mortality in the United States.*

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women. As the incidence of bronchogenic carcinoma increases in women, the physician should be aware of its various and unusual presentations. Bronchogenic carcinoma may produce several hormones, including anti-diuretic hormone, parathyroid hormone-related peptide, corticotropin, and the beta subunit of human chorionic gonadotropin (βhCG). Measurement of βhCG in serum and urine is the basis for pregnancy tests, since it increases dramatically in early pregnancy. Historically, elevations of βhCG levels in bronchogenic carcinoma have not been confused with pregnancy, since bronchogenic carcinoma occurred most frequently in men or postmenopausal women. However, as this malignancy becomes more frequent in young women, there is a potential for confusion. We report an occult bronchogenic carcinoma producing βhCG that was mistaken for a pregnancy state.

**CASE REPORT**

A 31-year-old woman, gravida 3 para 2 A abortion 1, presented with abdominal pain, dyspepsia, nausea, and amenorrhea of 3 months' duration. She had been taking oral contraceptives for the past 10 years and had missed two oral contraceptive pills in the prior cycle. She had smoked one pack of cigarettes per day for the past 15 years. A qualitative βhCG test result was positive. On pelvic examination, the uterus was normal sized and the left adnexum was tender. Two serum concentrations of βhCG (kit from Abbott Laboratories, Diagnostics Division, Abbott Park, Ill) 3 days apart were 47 IU/L and 44 IU/L (negative < 5 IU/L). An ultrasound examination demonstrated an empty uterine cavity and a thin-walled cyst on the left ovary. A dilatation and curettage was performed that revealed no chorionic villi. The persistently mildly elevated serum concentration of βhCG, a tender left adnexum, and an empty uterine cavity suggested the diagnosis of ectopic pregnancy. However, no ectopic pregnancy was identified by laparoscopy, and the clear ovarian cyst was aspirated. Subsequently, weekly βhCG concentrations were 39, 39, and 36 IU/L. This persistent elevation was believed to be due to unidentified trophoblastic tissue, and she was treated with a single intramuscular dose of methotrexate (50 mg/m²). The βhCG concentrations, however, remained elevated (35 to 65 IU/L). A chest radiograph and magnetic resonance imaging of the head with attention to the pituitary gland were normal.

One year following initial presentation, the patient developed a rapidly growing neck mass and was referred to our institution. An immobile, nontender 6×8-cm neck mass that extended from 2 cm above the sternal notch to the left supraventricular region and a 4×4-cm mass in the right supraventricular region were palpable. Serum βhCG level was 146 IU/L. Both the fine-needle aspiration and lymph node biopsy specimen showed that the neoplasm was a poorly differentiated adenocarcinoma with squamous differentiation. Some cytoplasmic vacuoles contained mucin, and some reacted positively with anti-hCG antibody (Fig 1). Computed tomographic scan of the chest showed extensive adenopathy in the supraventricular and infraclavicular regions but no easily identifiable parenchymal lung involvement.

The patient received emergent radiation therapy for airway compromise, and the βhCG concentration decreased to 7 IU/L. She subsequently received four courses of cisplatin and etoposide, and her serum βhCG concentration fell to less than 3 IU/L.

**DISCUSSION**

We have described a young woman with a βhCG-secreting bronchogenic carcinoma who was initially considered to be pregnant when she presented with a mildly elevated βhCG level and secondary amenorrhea. When it became apparent that this was not a pregnancy and the βhCG level remained elevated, a careful and repeated evaluation for bronchogenic carcinoma and other malignancies was not undertaken, resulting in a delay in diagnosis. While secondary amenorrhea and an elevated βhCG level is a potential presentation of bronchogenic carcinoma in a young woman, to our knowledge, it has not been reported previously.

The bronchogenic carcinoma was proved to be the source of the βhCG production, and this was most likely the cause of the amenorrhea. Immunohistochemical stains of the tumor were positive for βhCG, and treatment decreased the size of the tumor and concomitantly the circulating βhCG concentration. The ectopic production of hormones is a well-recognized feature of neoplasms, and these hormones are often valuable tumor markers. βhCG is a trophoblastic glycoprotein that is normally present during pregnancy and for a few weeks after removal of the placenta. In bronchogenic carcinoma, the incidence of an increased serum concentration of βhCG is about 7 to 21%. Therefore, it is predictable that bronchogenic carcinoma may “hormonally” mimic pregnancy and it must be considered in the differential diagnosis of secondary amenorrhea and a persistently elevated βhCG concentration in the absence of an obvious pregnancy.

**REFERENCES**

Unilateral Hyperlucency With Left Lower Lobe Mass in a Patient With Bronchial Asthma*

Rajesh G. Patel, MD; Joe R. Norman, MD, FCCP

Mucoepidermoid tumors are rare bronchial adenomas whose clinical presentation can mimic that of bronchial asthma. Bronchial adenoma should be included in the differential diagnosis of a patient with a persistent radiographic abnormality and clinical features of bronchial asthma. We present an adolescent female with a history suggestive of bronchial asthma and a persistent left lower lobe atelectasis, who later was found to have a low-grade mucoepidermoid tumor.

(Chest 1995; 107:569-70)

Key words: asthma; bronchial adenoma; endobronchial lesion; mucoepidermoid; unilateral hyperlucency

Mucoepidermoid tumors account for about 1% to 5% of bronchial adenomas. No characteristic features of these tumors distinguish them from bronchogenic carcinoma or other benign lesions. Diagnosis and classification require histopathologic examination of the tumor. Surgical resection of the low-grade mucoepidermoid tumor has an excellent prognosis.

CASE REPORT

A 17-year-old black female adolescent with a history of recurrent exacerbation of bronchial asthma being treated and followed up by her local pediatrician was admitted to the University Medical Center, Jackson, Miss. for breathlessness, wheezing, and nonproductive cough not responding to β-agonist metered-dose inhaler. She denied a history of fever, preceding upper respiratory tract infection, or any allergies. She was neither a smoker nor an alcoholic. She gave a history of recent hospitalization for a left lower lobe pneumonia a few months prior to this hospital admission, the details of which were not available. Physical examination at admission revealed a temperature of 36.6°C, heart rate of 110/min, respiratory rate of 30/min, no pulsus paradoxus, and no generalized lymphadenopathy. Lungs on auscultation revealed vesicular breath sounds and crackles over the left base posteriorly with expiratory wheezes bilaterally. Findings from the rest of the physical examination were unremarkable. Arterial blood gas values on room air revealed a PaO₂ of 60, a PaCO₂ of 33, and a pH of 7.46. She had a leukocytosis of 11,000 with predominantly neutrophils and no electrolyte imbalance. Her chest radiograph was remarkable for left hyperlucency and a rounded retrocardiac density (Fig 1). Her symptoms and chest radiograph worsened despite aggressive treatment with β-agonists (nebulized), intravenous steroids, and continuous positive airway pressure by face mask. A computed tomographic (CT) scan of the chest with contrast confirmed the initial chest radiographic finding of unilateral left hyperlucency with retrocardiac mass close to the hilum (Fig 2). Findings of the CT chest scan were consistent with left lower lobe collapse, although underlying mass could not be excluded. She underwent fiberoptic bronchoscopy under general anesthesia that revealed a mass projecting out from the left lower bronchus up to the left mainstem bronchi. Biopsy specimen revealed a low-grade mucoepidermoid tumor. She subsequently underwent thoracotomy with left lower lobectomy and had an uneventful postoperative period. Pathologic gross specimen revealed the whole lower lobe distorted by the tumor without evidence of fat

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