Birt–Hogg–Dube´ syndrome

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Citation

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Abstract

Birt-Hogg-Dubè syndrome (BHD) is characterized by cutaneous manifestations specifically hair follicle tumors, renal neoplasms and pulmonary cysts. We will report a case of a 37 years old white female who presented with this syndrome. All practicing physicians should be aware of this syndrome in view of the different manifestation this interesting syndrome can present with, meaning it could range from a benign process to a life threatening condition.

INTRODUCTION

Birt- Hogg-Dubè Syndrome is an autosomal-dominant inherited geno dermatosis that predisposes to fibrofolliculomas, kidney neoplasms, lung cysts and spontaneous pneumothorax.[1] It was first described in the literature in 1977 by Drs. Birt, Hogg, and Dube´, that described a family whose members were affected with multiple, small, white or skin-colored papules located on the face and neck.

Subsequently this gene was mapped to chromosome 17p11.2 [2]

CASE REPORT

A 37-year-old white female presented to our institution complaining of right sided pleuritic chest pain associated with non-productive cough and nasal congestion. In view of a recent history of spontaneous pneumothorax and CXR findings (see fig 1) she was admitted for observation, treatment of chronic obstructive pulmonary disease exacerbation and pain control.

Her past medical history was significant for a recent episode of a left sided pneumothorax 10 to 15% that resolved without surgical intervention. She had cancer on the right kidney, treated with nephrectomy done on another facility in 2005 (records not available). On the family history her mother and her sister had spontaneous pneumothorax. The patient smoked one pack per day for 15 years.

Her work up included chest radiography PA and lateral, a computed tomography of the chest without contrast (fig 1) and alpha 1 anti-trypsine levels that was within normal limits. In view of her medical history and family history we discussed with the patient the possibility of having BHD and she agreed for genetic testing.

The patient was treated with bronchodilators and analgesia , her symptoms improved and she was discharged home.

A follow up on her genetic study revealed a positive result for c.1285 dupc mutation in BHD (FLCN) GENE.

Figure 1

Figure 1: Chest PA image shows right-sided pulmonary blebs (A),Chest CT images (B), (C), and (D), show multiple billateral pulmonary cysts , and blebs.

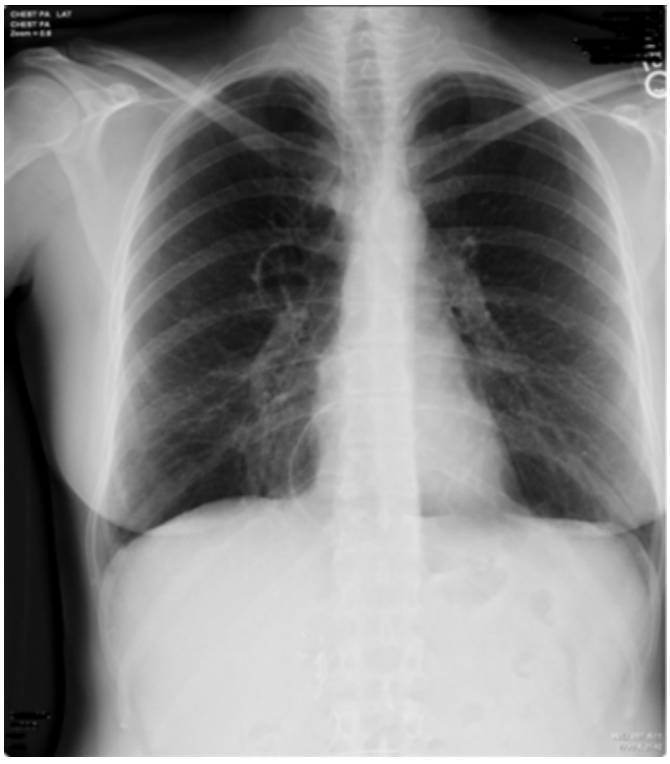


Figure 2
Figure 1b

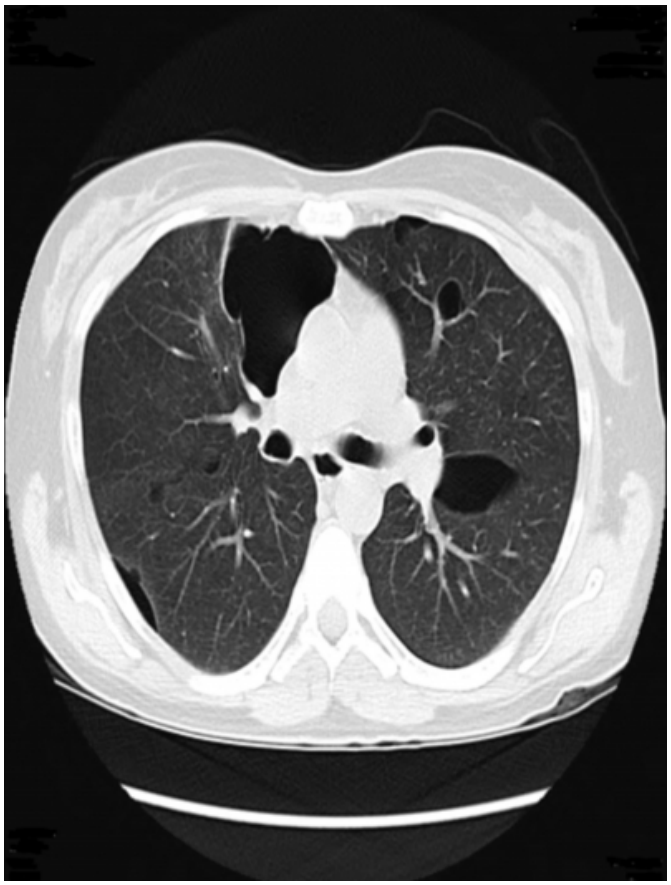


Figure 3
Figure 1c

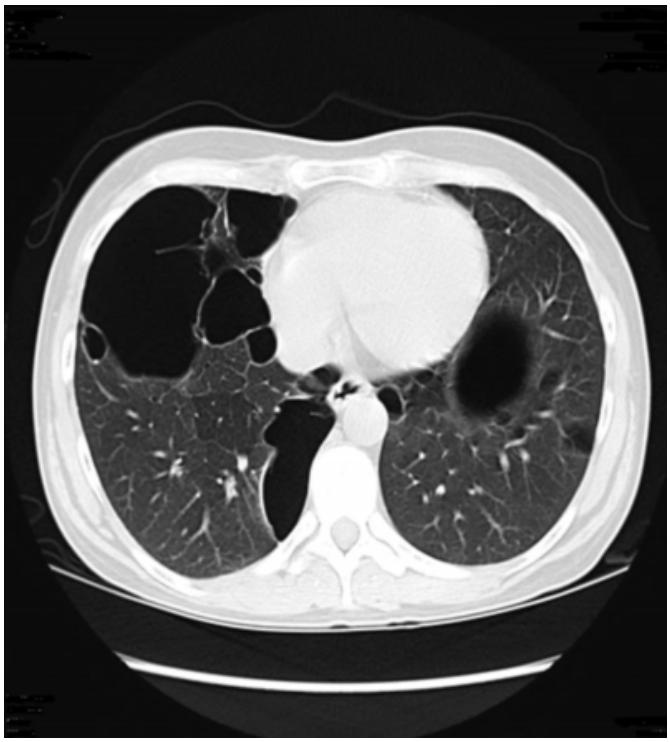
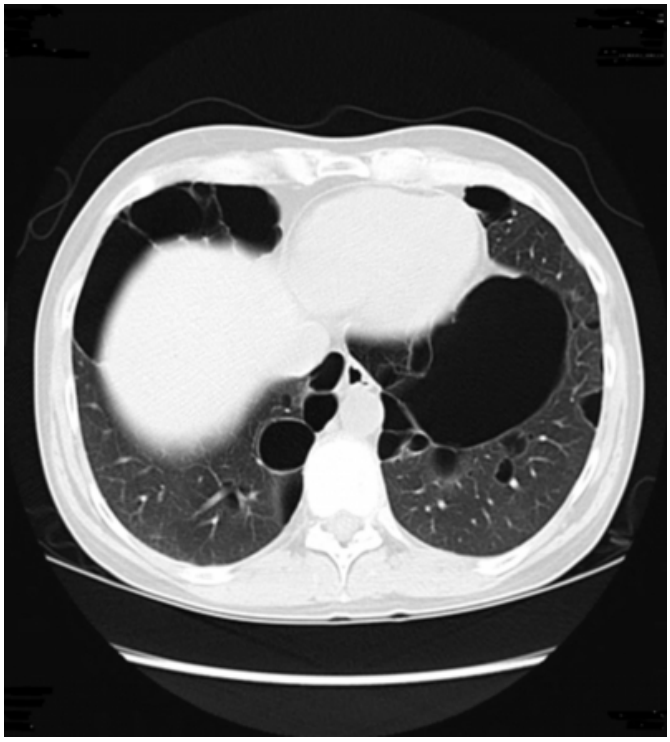


Figure 4
Figure 1d



DISCUSSION

BHD is a rare pathology and a high index of suspicion is required to diagnose it, is very important to identify these

patients in view that there is an increase risk for renal neoplasia; patients and their relatives will benefit from periodic surveillance with computed tomography and renal ultrasound. [3]

In order to map the BHD locus, a genome-wide linkage analysis was done using polymorphic microsatellite markers on a large Swedish BHD family. Evidence of linkage was identified on chromosome 17p12-q11.2 [4]

Twenty clinically affected probands, ascertained from different regions in the Netherlands, were investigated. Family studies revealed 12 clinically affected family members. The mean age at clinical diagnosis was 43.3±14.2 years (mean7SD), 2 of them had a history of spontaneous pneumothorax and at the time of diagnosis BHD was not considered, in this group 20 affected families, renal cancer and skin tumors were present.[5]In a series of 223 members of BHD families, after adjusting for age the odds that a person would have pneumothorax was 50.3 times greater than a person not affected. The pulmonary cysts found on this patients were well circumscribed and separate from each other, showed a non-enhanced well defined smooth wall, and most of the cyst were basilar and subpleural. In a case report the pulmonary cysts were described as sharply marginated, air-containing lesions with walls of 2mm or less and measuring 0.5 -3.5 cm. [6,7].

In a study done by Toro J R, Glenn G et al 89% patients with BHDS have multiple pulmonary cysts. Twenty-four percent of patients with BHDS had a history of one or more pneumothorax, all of whom had multiple lung cysts identified by chest CT imaging. There was equal distribution of pneumothorax among males and females. [8]

Patients with BHD syndrome may also present different histological types of renal carcinoma including, renal oncocytomas, clear cell, papillary and chromophobe renal carcinomas and a hybrid tumor. The predominant renal tumor is hybrid oncocytic renal cell carcinoma.[9] In families in which multiple members are found to have chromophobe or hybrid oncocytic renal cell carcinomas BHD should be considered regardless wether or not typical skin lesions are present. Surgeons who treat patient with BHD should keep in mind the great potential for perioperative pneumothorax. [10]

Multiple fibrofolliculomas, along with trichodiscomas and acrochordons compose the triad of Birt-Hogg-Dubé syndrome it is important to recognize those skin lesions to investigate for other associated pathologies. [1]

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