# A Rare Case Of Birt Hogg Dube Syndrome Presenting As Recurrent pneumothorax

**Dr. Antonious Maria Selvam, Dr. Yuvarajan Sivagnaname, Dr. Praveen Radhakrishnan,**
**Department of Respiratory Medicine,**
**Sri Manakula Vinayagar Medical College and Hospital, Puducherry, India.**

## INTRODUCTION

**Birt–Hogg**–Dubé syndrome (BHD) is a rare inherited disorder caused by mutations in the folliculin coding gene (FLCN), characterised by multiple fibrofolliculomas, pulmonary cysts, pneumothorax, renal cysts and renal tumours.[1]

## CASE REPORT

A 29-year-old female came with complaints of breathlessness and dry cough for past 7 days which is insidious onset and progressive in nature. She also had left sided dull aching chest pain. She was a breastfeeding mother and had breathlessness in postpartum period. She is non-smoker with no co-morbidities. On examination, there was no visible cutaneous lesions. Her vitals were stable with pulse oximetry saturation of 95% @ room air. Routine blood investigations were normal. Chest auscultation revealed reduced breath sound intensity on right hemithorax. Chest radiography showed right pneumothorax and intercostal drain was inserted. Patient symptomatically improved.USG abdomen and KUB was normal. Computed tomography thorax showed multiple thin walled lentiform shaped and irregular cysts in the right lower lobe posterior basal segment. In view of recurrent pneumothorax and above radiological findings, patient was posted for video assisted thoracoscopic surgery (VATS) and excision of the cyst was done; sent for HPE. Serum for folliculin gene 1 mutation phenotype study was positive suggestive of Birt-Hogg-Dubé syndrome. Genetic counselling was given and she is on regular follow up.

## Discussion

BHD syndrome is caused by germline autosomal dominant pathogenic variants in the folliculin (*FLCN*) gene, located on chromosome 17p11.2.[2]The incidence of Birt-Hogg-Dubé (BHD) syndrome is unknown and two hundred families were identified worldwide till date.[1] Though overall penetrance of folliculin (*FLCN*) mutations in affected families is high, the presence of skin, pulmonary, and renal manifestations varies significantly even among them. The patients with BHD syndrome have a sevenfold increased risk of renal tumours compared with the general population.[3]Fibrofolliculomas are the most commonest and earliest manifestation, found on the face and upper trunk with patients of BHD syndrome.[4] 70 to 80 percent of affected members of BHD families presents with multiple, bilateral pulmonary cysts.[5]Spontaneous pneumothorax frequently develops only in 30 percent of those patients with pulmonary cysts, usually before the age of 40 years. However, renal cancer is the most serious manifestation of BHD syndrome, occurring in approximately 12 to 34 percent of patients around the age of 50 years.[6-8]
The diagnosis of BHD syndrome is made based upon the presence of one or more of the following proposed criteria.[9]

### MAJOR CRITERIA

- Presence of ≥2 skin lesions clinically consistent with fibrofolliculoma and/or trichodiscoma and ≥1 histologically confirmed fibrofolliculoma.
- Pathogenic germline mutation in FLCN

### MINOR CRITERIA

**Multiple lung cysts:** basally located with no other apparent cause, with or without spontaneous pneumothorax
**Renal cancer:** Early onset (<50 years), multifocal or bilateral renal cancer,(oncocytic chromophobe hybrid histology)

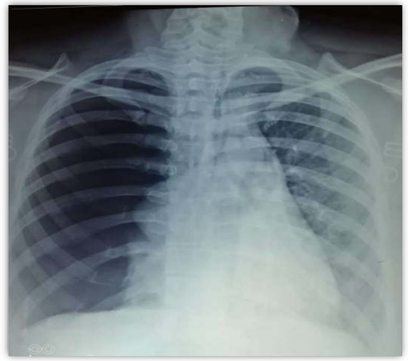
- First-degree relative with Birt Hogg Dube –Dube.

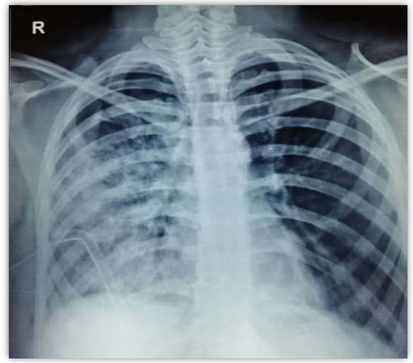
**Patients should fulfil 1 major or 2 minor criteria for diagnosis**

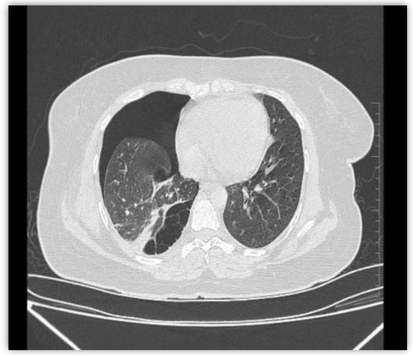
**Peculiarities in our case:**
We encountered a young female with a rare presentation of recurrent pneumothorax and unilateral involvement of multiple irregular lentiform shaped cysts. On general examination she didn't have visible cutaneous lesions. USG KUB and CECT abdomen was normal. VATS guided excision of cysts was done and biopsy revealed predominant fibrocollagenous tissue along with a benign cystic lesion. Serum folliculin gene 1 mutation phenotype studies were positive, suggestive of Birt Hogg Dube syndrome.

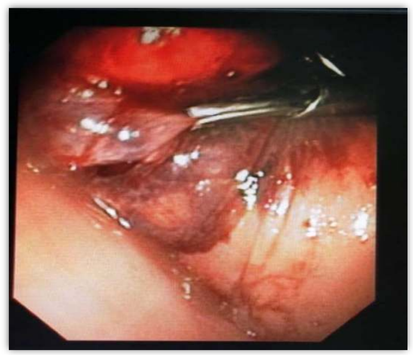
## CONCLUSION

BHD syndrome should be considered in patients with spontaneous pneumothorax or cystic lung disease. Concomitant skin manifestations, family history of pneumothorax, renal cancers and skin manifestations supports the suspicion of BHD syndrome. Early diagnosis is important in order to subject patients to systematic screening for renal cancers.







## References

Fred H Menko, Maurice A M van Steensel, Sophie Giraud et al. Birt-Hogg-Dubé syndrome: diagnosis and management. Lancet Oncol. 2009;10(12):1199.
Lim DH, Rehal PK, Nahorski MS et al. A new locus-specific database (LSDB) for mutations in the folliculin (FLCN) gene. Hum Mutation. 2010 Jan;31(1):E1043-51.
Zbar B, Alvord WG, Glenn G et al. Risk of renal and colonic neoplasms and spontaneous pneumothorax in the Birt-Hogg-Dubé syndrome. Cancer Epidemiol Biomarkers Prev. 2002;11(4):393.
Aivaz O, Berkman S, Middelton L et al. Comedonal and Cystic Fibrofolliculomas in Birt-Hogg-Dube Syndrome. JAMA Dermatol. 2015 Jul;151(7):770-4.
Gunji Y, Akiyoshi T, Sato T et al. Mutations of the Birt Hogg Dube gene in patients with multiple lung cysts and recurrent pneumothorax. J Med Genet. 2007 Sep;44(9):588-93. Epub 2007 May 11.
Toro JR, Wei MH, Glenn GM et al. BHD mutations, clinical and molecular genetic investigations of Birt-Hogg-Dubé syndrome: a new series of 50 families and a review of published reports. J Med Genet. 2008 Jun;45(6):321-31. Epub 2008 Jan 30.

**Conflict of interest : NIL**