CASE REPORT

Pulmonary Lymphangiomyomatosis in Bourneville's Tuberous Sclerosis: Case Report

Asmae El Ismaili*, Mouni A Serraj, Bouchra Amara, MC Benjelloun

Abstract

Lymphangiomyomatosisis a rare disease characterized by a proliferation of abnormal smooth muscle cells responsible for infiltration with the destruction of tissue architecture and genesis of cystic lung and lymphatic lesions. In addition to lung damage, Bourneville's tuberous sclerosis (BTS) also affects the skin, brain, retina, kidneys, and, less frequently, the heart and bone**.**

We report the case of a young patient with bilateral pneumothorax revealing pulmonary lymphangiomyomatosis in the context of Bourneville'stuberoussclerosis BTS.

Keywords: Bilateral pneumothorax, Bourneville's Tuberoussclerosis, Pulmonary lymphangiomyomatosis, Subependymal Cerebral nodules.

International Journal of Health and Biological Sciences, (2020); DOI: 10.46682/ijhbs.3.2.2

Introduction

There is a genetic relationship with Bourneville's tuberous sclerosis (BTS) and lymph angiomyomatosis, including the participation of the tuberous sclerosis complex 2 (TSC2) gene, that's why clinicians need to be conscious of the association and to make STB assessment in the face of any suspicion of lymph angiomyomatosis (namely bilateral pneumothorax)

Observation

She is a patient aged 25 yo, mentally-retarded, followed for an undocumented kidney problem for the last 4 years.

Since 4 months, she reports dyspnea of effort with aggravation of the bilateral-lumbar pain.

The symptomatology increased one-month ago by a dyspnea of rest with a dry cough without chest pain or hemoptysis, which prompted her to go to the emergency, the clinical examination found a polygenic patient at 32 c/min SaO_2 at 79%, intercostal draught with a bilateral air epileptic syndrome.

A chest X-ray was taken, showing a bilateral pneumothorax of great abundance on the right and a partial pneumothorax on the left.

The patient was drained on both sides with good evolution.

Elsewhere, skin examination found fibrous plaques on the forehead, papular lesions on both cheeks and on the wings of the nose, acromic plaques on the external surface of the left thigh, 2-hypochromic macules on the left thigh, and a small number of fibrous plaques on the right thigh.

The abdominal examination found bilateral lumbar tenderness and neurological examination is without peculiarities

cranial and thoracoabdominal scan (done after an accidental fall of the left drain) objectified a bilateral cystic pulmonary lesion and a right pneumothorax (Figure 1).

in addition to the chest abnormalities, the scan showed subependymal cerebral nodules (Figure 2) and renal mass on both sides (angiomyolipoma) (Figure 3).

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How to cite this article: El Ismaili A, Mouniaserraj, Bouchraamara, Benjelloun MC. Pulmonary Lymphangiomyomatosis in Bourneville's Tuberous Sclerosis: Case Report. International Journal of Health and Biological Sciences 2020; 3(2):6-8

Source of support: Nil

Conflict of interest: None

Received: 21/04/2020 **Revised:** 02/05/2020 **Accepted:** 15/05/2020

The diagnosis of Bourneville's tubular sclerosis was retained.

in search of other abnormalities, a cardiology consult with cardiac echography ruled out a heart condition as well as an ophthalmological examination.

Surgical pleurodesis was proposed, but the patient was recused by the anesthetist because of the major risk of ventilating pathological lungs.

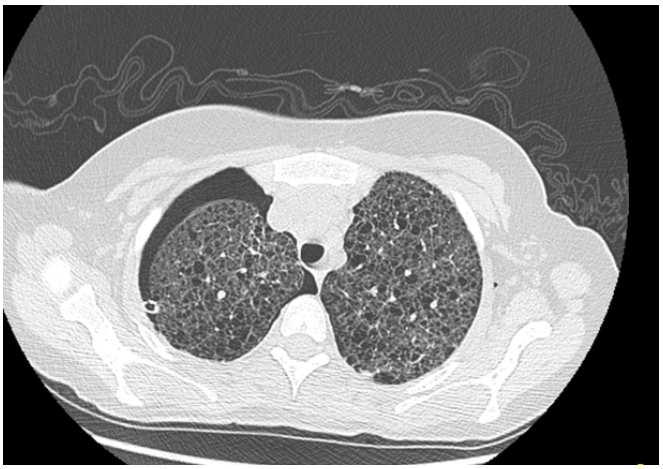

Figure 1: CT scan showing bilateral cystic pulmonary lesion and a right pneumothorax in the context of tuberous bourneville sclerosis.

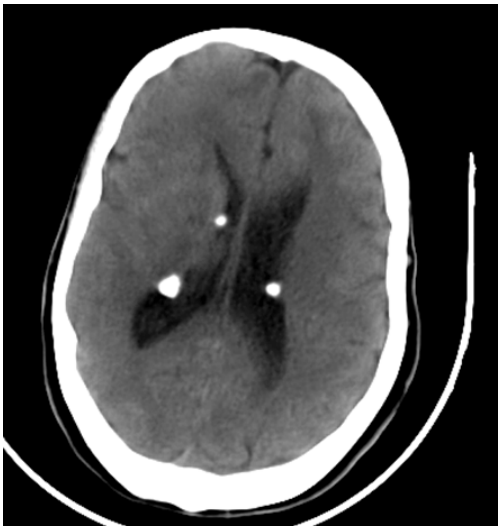

Figure 2: Cranial scan showing a subependymal cerebral nodule in the context of tuberous bourneville sclerosis.

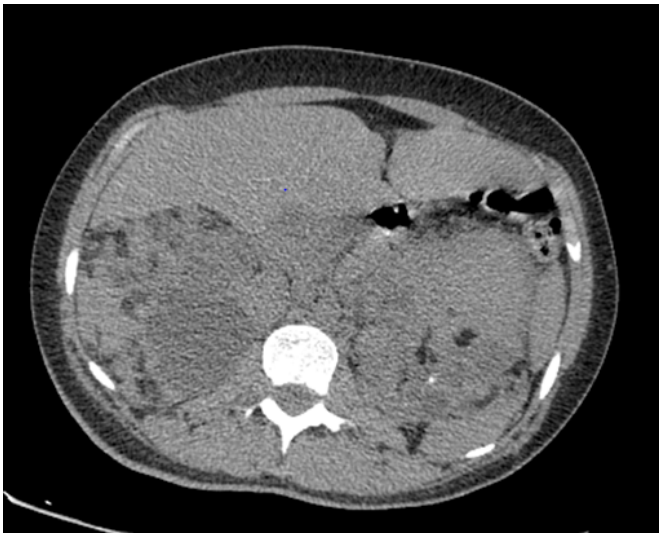

Figure 3: Abdominal scan showing renal angiomyolipoma in the context of tuberous bourneville sclerosis.

The evolution was marked by the return of the lung to the wall, mTOR inhibitors were prescribed to the patient rather discharge from hospital.

Discussion

Lymphangiomymatosisis a rare disease in young women, in a period of genital activity, the average age of diagnosis varies between 30 and 45 years.[1]

During the Bourneville's tubular sclerosis, the physio-pathology implies the mutation of the tumor suppressor genes TSC1 and TSC2.

Pulmonary lymph angiomyomatosis is often discovered in the course of a pneumothorax. The Suspicion of tuberous bourneville sclerosis requires a complete systematic review in search of other systemic disorders, the diagnosis of BTS is based on clinical, radiological, and some times genetic criteria (Table 1).[2]

It is the identification of the two genes responsible for the disease, which, by making it possible to understand how these tumors were forming, paved the way for treatment medical. A crucial discovery was that protein seconded by these two genes form a complex that physiologically inhibits the mammalian target of rapamycin (mTOR) signaling pathway (for mammalian Target Of Rapamycin), which has a role central to the physiological control of proliferation cell phone. It appeared that when one of these proteins is

Table 1: Diagnostic criteria of Bourneville'stubularsclerosis (Northrup *et al*.)

Genetic diagnostic criteria	*Clinical diagnostic criteria*
identification of a pathogenic mutation in the TSC1 or TSC2 gene in DNA extract edfrom normal tissues is sufficient to make a definit ediagnosis of Bourneville'stubularsclerosis In 10 to 25% of people withBourneville'stubularsclerosis, conventional genetic tests do not reveal a mutation. However, a normal result does not rule out the diagnosis.	Major criteria : 1- Hypomelanic spots (>3), minimum 5mm in diameter 2- Angiofibromas (>3) or cephalic fibrous plaques. 3- Nailfibroids 4- Grief Skin Plates 5- Multiple retinal hamartomes 6- Cortical dysplasia (cortical tubers or lines of radial migration in the white matter) 7- Subependymal Nodules 8- Subependymalgiantcelltumor 9- Cardiacrhabdomyoma 10- Lymphangioleiomyomatosis * 11- Angiomyolipomas * Minorcriteria : 1- "Confetti" skin lesions 2- Wells in dental enamel (>3) 3- Intra-oral fibroids (>2) 4- Achromicretinal spots 5- Multiple renal cysts 6- Non-renal Hamartomes

Definite diagnosis: 2 major criteria or 1 major and 2 minor criteria
Possible diagnosis: 1 major criteria or more than 2 minor criteria

A combination of the two major clinical criteria, which are Lymphangioleiomyomatosis and Angiomyolipomas, without other features of tuberous bourneville sclerosis, is not considered for definitive diagnosis.

deficient due to a mutation of TSC1 or TSC2, the excessive activation of this signaling channel mTOR conducts, in tissues where a second somatic mutation, to the tumor proliferation that goes constitute the hamartoma. Hence the use of mTOR inhibitors (already used in organ transplantation): sirolimus or rapamycin (Rapamune®) or everolimus (Certican®).

The effect of these drugs was first tested in animal models and then in a few patients with large cerebral or renal hamartoma. The result is favorable; clinical trials were conducted in patients with renal manifestations,[3] pulmonary,[3] and cerebral.[4] Results are impressive and consistent: after 6 months of treatment, the size of the tumors in this various organs is reduced by more than 30% in 75% of cases. of patients.[5] In two recent clinical trials reported using ever olimusin 117 patients treated for cerebral astrocytoma (84% under the age of 18 years of age) and 118 treated for renal MLA, a reduction of size of more than 50% of the targeted tumour is obtained, at the After one year, in 35 and 42% of patients, respectively.[6,7] At the end of the current follow-up (19-33 months; mean 28 months), the lesions continue to decrease or in any case stabilize. However, thesedrugs do cause enough often some side effects, including the main are stomatitis and respiratory tract infections.[8,9]

Rapamycin has also been tested in topical use. at concentrations ranging from 0.003 to 1% for the treatment of angiofibroma of the face, with results very encouraging both in size and appearance.

Conclusion

Pulmonary lymphangiomymatosis most often progresses to chronic respiratory failure within a few years or decades. Hormonal therapy has not been shown to be effective in the absence of controlled clinical trials. Lung transplantation is the last therapeutic resort; rare recurrences of transplant edlungs have been reported.

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