

## Autologous “blood patch” pleurodesis: A safe and useful treatment for persistent pneumothorax in children ☆



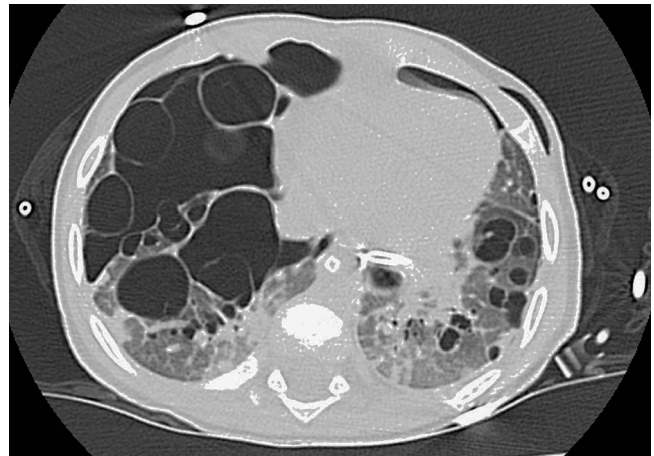
### Pleurodesis con sangre autóloga: una solución, segura y eficaz para el tratamiento de neumotórax persistente

Dear Editor:

Persistent pneumothorax is defined as pneumothorax of more than five days' duration.<sup>1</sup> It is associated with increased morbidity and cost of care.<sup>2,3</sup> The most widely accepted treatment for it is pleurodesis. Several types of pleurodesis have been proposed, including surgical approaches and the instillation of different chemicals in the intrapleural space. The long-term impact of the use of these substances in children is not known,<sup>1,2</sup> and thus surgery is usually the approach chosen in the paediatric population.<sup>2</sup> Autologous blood patch (ABP) pleurodesis has proven to be a simple, inexpensive, efficacious and safe method.<sup>2,4</sup> We present the case of the first patient with persistent bilateral pneumothorax we have treated successfully with ABP.

The patient was an infant aged 8 months with a crusty papular rash with onset at 3 months and weight faltering starting at age 5 months. He was admitted to hospital due to respiratory distress of 48 h duration. The findings of plain radiography were compatible with interstitial lung disease and left pneumothorax. A high-resolution CT scan of the chest revealed multiple bilateral cyst-like lesions, left pneumothorax, a mild mediastinal shift and partial collapse of the left lung (Fig. 1). The patient was admitted to the paediatric ICU to undergo drainage of the air leak. A skin biopsy and bronchoalveolar lavage were performed, with analysis of the latter finding 11.6% of CD1 cells in cytometry and 20% of CD1 cells in the cytological examination, both of which are compatible with Langerhans cell histiocytosis (LCH). There were no significant abnormal findings in any of the other diagnostic tests. Treatment for systemic LCH with lung involvement was initiated with vinblastine and corticosteroids.

A chest tube was inserted in the left pleura, and by 48 h the patient had developed a right pneumothorax requiring placement of another chest tube, with signs of a continuous bilateral air leak. Persistence of the bilateral pneumothorax led to performance of ABPs in the left and right sides on days 40 and 42 of admission, respectively. The air leak ceased immediately in the left hemithorax, and 15 min after the procedure in the right hemithorax. The follow-up X-rays showed complete resolution on both sides of the chest (Fig. 2). The patient did not experience pain or other complications from the ABP, and remained asymptomatic at two years' followup.



**Figure 1** High-resolution CT: multiple bilateral cyst-like lesions with left pneumothorax, mediastinal shift and partial left lung collapse.

Persistent air leak is an infrequent complication following thoracic surgery, spontaneous pneumothorax, mechanical ventilation or lung infection.<sup>2</sup> It is defined as an air leak lasting more than five days, and is associated with increased morbidity, hospital length of stay and cost of care.<sup>1-3</sup> There is a large body of evidence on chemical pleurodesis, which consists in the introduction of different substances in the pleural space (talc, tetracycline, doxycycline and bleomycin) to trigger an inflammatory response in the cavity that leads to adhesion of the visceral and parietal pleurae. Previous research has described a decline in lung function following chemical pleurodesis in adults.<sup>4,5</sup> The long-term effects of the use of these substances in children are not well understood. Autologous blood patch pleurodesis has been studied extensively in adults, and some authors propose it as the gold standard for treatment because it is cheap, quick and safe.<sup>6</sup> There is a published case series of children treated with this technique, which was efficacious (100% success rate) and safe.<sup>2</sup> In the case presented here, ABP was chosen due to the presence of underlying lung



**Figure 2** Chest X-ray 48 h after performance of ABP.

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disease, as there is no evidence of a decline in lung function following ABP, while reduced function has been observed following the use of other substances.<sup>4,5</sup> The technique consists in the instillation through a chest tube of 1–2 mL/kg of blood previously extracted from the patient adhering to strict aseptic technique. After the blood is instilled, the cavity is rinsed with 10 mL of physiological saline solution and the chest tube is suspended 60 cm overhead for 30 min to prevent drainage of the instilled blood while allowing air to escape the chest.<sup>2,4,5</sup> We recommend changing positions to facilitate a better distribution of the blood.

While the exact closure mechanism is not understood, it has been postulated that the blood acts as a patch that directly seals the defect, followed by an inflammatory response in the pleural cavity.<sup>6</sup> In the case presented here, treatment with vinblastine and corticosteroids promoted the persistence of pneumothorax, making the patch-like effect all the more relevant.

The most frequent complications of ABP are fever, pneumothorax and empyema. Unlike other techniques, it is painless, does not require sedation or analgesia, and can be repeated. We did not observe any of the previously described complications in our patient.

Autologous blood patch pleurodesis is a safe, inexpensive and efficacious treatment for persistent air leak. Larger studies need to be conducted in the paediatric population prior to recommending its routine use.

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## Prolactinomas in a paediatric population<sup>☆</sup>



## Prolactinomas en la población pediátrica

Dear Editor:

**Case 1:** female patient aged 15 years that sought care at her assigned health care centre for irregular menstruation. There was no personal or family history of interest, and the patient was not taking any medication. Her age of menarche was 11.5 years.

The patient was referred to the paediatric endocrinology unit after testing revealed an elevated prolactin level (198 ng/mL; normal value range, 8.5–26.5 ng/mL). During the structured interview, the patient reported one year of intermittent blurry vision and frontal headache of three months' duration accompanied by light unilateral galactorrhoea. The findings of the physical examination were: height, 169.5 cm (standard deviation [SD], +1.1); weight, 53.3 kg; body mass index (BMI), 19.29 kg/m<sup>2</sup> (SD, –0.79). The patient was at Tanner stage V of pubertal development with proportionate features. There was no galactorrhoea,

hirsutism or acne. The complete blood count and blood chemistry panel were normal, with the most salient finding being the serum prolactin level (205.6 ng/mL). Magnetic resonance imaging (MRI) revealed an enlarged pituitary gland with a superior border that was convex towards the midline and signal hyperintensity suggestive of subacute haemorrhage (Fig. 1). The pituitary gland extended into and obliterated the suprasellar cistern, exerting a mass effect on the optic chiasm. The ophthalmological examination evinced mild hyperopia, and the visual field test and eye fundus examination were normal. The patient was given a diagnosis of prolactinoma with subclinical apoplexy based on these findings, and started treatment with cabergoline at a dose of 0.25 mg the first week, followed by a maintenance dose of 0.50 mg a week. One month after treatment initiation, the follow-up MRI scan showed an adenoma measuring 10 mm × 8 mm (Fig. 2), values that may have been overestimated due to haemorrhagic features, and the serum prolactin level was 12.6 ng/mL. At present, the patient has regular menstrual periods, normal vision without headache and no galactorrhoea.

**Case 2:** male patient aged 14 years that was being followed up for obesity and tall height with advanced bone age. The assessment of the patient's headaches included performance of an MRI scan that revealed a 10 mm × 10 mm nodule in the left region of the pituitary gland, with remodelling of the angle of the sella turcica with no extension to the cavernous sinus compatible with adenoma (at the

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