

Not All Children With Nodular Interstitial Lung Patterns in South Africa Have TB—A Rare Case of Paediatric “Bird Fanciers’ Disease”

Savvas Andronikou, PhD,^{1*} Pierre Goussard, MMed (Paed),² and Robert P. Gie, FCP (Paed)²

Summary. Bird Fancier’s disease is an allergic alveolitis that is rare in children. We describe the relevance of adequate history for making the diagnosis in children and the difficulty distinguishing this entity on chest radiographs and CT from imaging patterns caused by infections such as tuberculosis and HIV in developing countries. **Pediatr Pulmonol.**

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Key words: extrinsic allergic alveolitis; chest radiograph; computed tomography; tuberculosis; HIV.

INTRODUCTION

“Bird Fancier’s Disease” is the most common allergic alveolitis in adults¹ but is rare in children.^{2,3} It may present acutely and progressively, intermittently or as recurrent disease⁴ and eventual lung fibrosis.^{2,5} It results from contact with pets,¹ sports birds,⁶ game birds,⁷ exotic birds, and feather duvets.^{8,9} Imaging findings are common to tuberculosis (TB) and HIV.¹⁰ A typical clinical and radiographic pattern, high index of suspicion and an environmental history are essential.¹¹ We present a boy diagnosed through a meticulous history and imaging.

CASE REPORT

A 12-year-old boy presented with weight loss, fever, and cough over 2 months. He was cyanotic, had finger clubbing and was tachypneic. Crepitations were audible bilaterally. Screening for TB, mycoplasma, and chlamydia was negative and there was no cardiac disease. Treatment with oxygen and ceftriaxone was unsuccessful. Further questioning revealed the father was a pigeon breeder and the boy cleaned the bird cages. IgG antibody test against pigeon serum antigens was negative. Treatment with oral corticosteroids was successful but he represented in 2 weeks with the same symptoms after not avoiding the cages. Chest radiograph demonstrated a diffuse fine nodular pattern but no air-space confluence or effusion. CT chest demonstrated mediastinal lymphadenopathy. High resolution reconstructions

demonstrated a mosaic pattern with diffuse fine centrilobular nodules and a ground glass appearance in dependent areas consistent with acute hypersensitivity pneumonitis (Fig. 1). After treatment, the pigeons were removed and he had no further symptoms.

DISCUSSION

Bird Fancier’s disease is a hypersensitivity pneumonitis (allergic alveolitis) induced by inhalation of bird antigens in sensitized individuals.^{4,5,9} It can result from contact with birds^{1,6,7} or feather duvets.^{8,9} It is rare in

¹Radiology Department, University of the Witwatersrand, Johannesburg, South Africa.

²Paediatric Pulmonology, Department of Paediatrics and Child Health, University of Stellenbosch, Western Cape, South Africa.

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*Correspondence to: Savvas Andronikou, PhD, Harbouredge 700, 10 Hospital Street, Greenpoint 8005, Cape Town, South Africa.
E-mail: docsav@mweb.co.za

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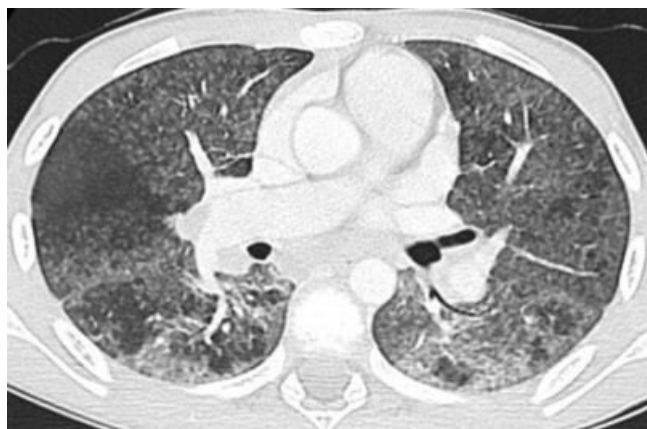


Fig 1. High resolution CT on lung window demonstrates a mosaic pattern with diffuse fine centrilobular nodules and a ground glass appearance in the dependent areas consistent with an acute hypersensitivity pneumonitis.

children^{2,3} (38 paediatric cases reported in English).^{2,3,5,12–16}

Prompt recognition and management is critical to prevent fibrosis.^{2,5} Treatment primarily involves avoidance and oral prednisolone.^{2,5} The varied clinical presentation, (acute progressive with breathlessness, cough, fever, shivering, and malaise <8 hr after exposure; intermittent non-progressive; recurrent non-acute)^{4,5} makes diagnosis challenging. Children usually present with chronic insidious symptoms due to prolonged exposure to low amounts of antigen⁵—dyspnoea, anorexia, decreased energy, intermittent low-grade fever, and coughing.⁵

Radiographic findings range from widespread patchy consolidation (acute)¹¹ to a bilateral interstitial pattern (80% of patients),¹² (lower zone⁷ micronodular² or peripheral reticular⁸). The micronodular pattern seen in our patient is typical in children.⁵ HRCT findings include micronodules,⁸ ground glass opacity (68%),^{8,12} mosaic pattern (61%), and emphysema (17%).¹² In the late stages, fibrosis and honeycombing predominating at the bases may occur.^{7,11}

Diffuse interstitial lung disease is rare in childhood and may be due to infection⁵ (TB, HIV, aspergillosis)¹⁷, chemicals, drugs, radiation, malignancy, collagen vascular disease, idiopathic fibrosis, alveolar proteinosis, pulmonary lymphangiectasia, and idiopathic haem siderosis.^{5,18,19} Primary TB on HRCT may present as miliary or larger nodules, groundglass, or consolidation,^{10,17} centrilobular opacities, bronchiectasis, and air-trapping. Mediastinal lymphadenopathy as seen in our patient is typical of primary TB. In children with HIV, *Pneumocystis carinii* Pneumonia (PCP/PJP), lymphocytic interstitial pneumonitis and bacterial pneumonias also result in patchy airspace, groundglass, reticules, or

nodules.²⁰ Our patients' imaging mimics infectious diseases. One publication by Madrenas and colleagues demonstrates that in the differentiation of patients with miliary TB and those with Bird Fancier's disease, the laboratory can make a clear distinction when the radiograph shows a nodular pattern.²¹ They showed that low values for hemoglobin, red blood cell count, and hematocrit; alterations of leukocyte count and differential; hypoalbuminemia and hyponatremia in a patient with fever, supports the diagnosis of TB. Normal values for these parameters, with hypergammaglobulinemia is more in keeping with Bird Fancier's disease.²¹

CONCLUSION

In Africa, a child with cough, fever, weight loss, and malaise demonstrating a nodular radiographic pattern probably has TB¹⁰ or HIV.^{22,23} To diagnose "Bird Fancier's Disease" in a child in this setting, paediatricians must have a high index of suspicion, recognize the typical clinical and radiological appearances and routinely take a diligent environmental history.

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