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Case Report

Correction of Spinal Deformity on a Lung Transplantation Recipient

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Abstract

Background: The coexistence of lung disease and scoliosis entails a dramatic situation. There are no papers reporting scoliosis surgery in patients who suffered lung transplantation.
Purpose: To describe the case of a patient who underwent surgery to correct progressive spinal deformity after two consecutive lung transplants.
Study Design: Case report, including review of patient records, imaging and pulmonary function tests, and literature review.
Methods: A 9-year-old woman diagnosed of idiopathic pulmonary fibrosis and progressive scoliosis underwent lung transplant. Re-transplantation of right lung was performed at the age of 14 due to chronic rejection. When she was 16, respiratory function was stable and spinal deformity severely impaired her quality of life. Patient and family demanded a surgical correction. At that moment, she had severe osteoporosis and immunosuppression as a result of anti-rejection therapy. The pattern was a severe double thoracic curve T1–T6 89° and T7–L1 139°. To correct it, a posterior instrumented spine fusion from T2 to L4 using a hybrid configuration was performed.
Results: No significant complications occurred in perioperative, postoperative, and midterm follow-up periods. Solid fusion was achieved and patient was satisfied with surgery. Unfortunately, chronic lung graft rejection worsened her long-term general status.
Conclusions: Scoliosis surgery on lung transplant recipients is feasible, regardless of potential complications related to immunosuppression and osteoporosis. The goal is to improve quality of life.

Keywords: Scoliosis; Spine deformity; Spine surgery; Lung transplantation; Pediatric transplant

Introduction

The results of surgeries for the correction of scoliosis in heart, kidney, and liver transplantation recipients have been reported [1-4]. As far as we know, there are no studies reporting scoliosis surgery in patients who had lung transplantation. We present here the case of a patient who underwent surgery to correct progressive spinal deformity after two consecutive lung transplants.

Theory

The coexistence of lung disease and severe scoliosis entails a dramatic situation for pulmonary function. More severe thoracic curve, early onset, and syndromic context result in poorer survival prognosis, having a greater impact on lung performance [5]. Despite guidelines contraindicating transplantation in the case of severe deformity of the chest wall or spine [6], the literature contains successful reports of two double-lung transplants [7,8], a single-lung transplantation [9], and a case of heart-lung transplantation [10] in patients sustaining prior spine deformity.

We report the case of a patient with progressive scoliosis associated with pulmonary idiopathic fibrosis. As a result of lung disease, she sustained two consecutive lung

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transplantation procedures. Once respiratory function was stabilized, surgery for spinal deformity correction was performed.

Material and Methods

The patient is a female born in 1995 in Central America; she was diagnosed with idiopathic pulmonary fibrosis and recurrent respiratory infections at an early age and required repeated admissions over the years. At 9 years old, she settled in Spain; progressive deterioration led to a baseline oxygen saturation of 75% to 90%, requiring intensive oxygen therapy. Spirometric values were forced vital capacity (FVC) 49% and forced expiratory volume in one second (FEV1) 53%. In this situation, the patient sustained uneventful double-lung

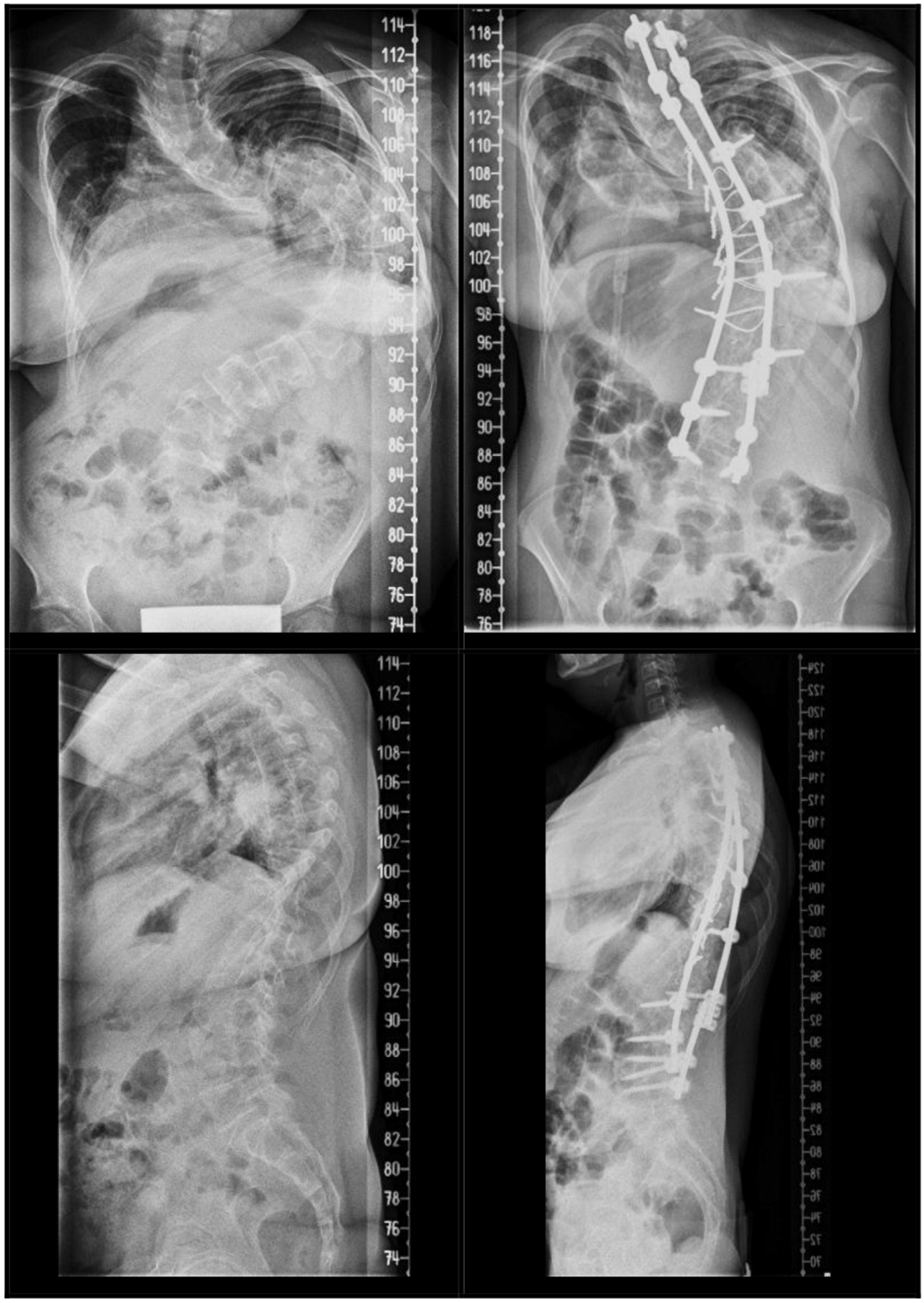

Fig. 1. Comparative imaging studies. Left radiographs correspond to the preoperative period. Right radiographs were taken just before the last follow-up.