

Letter

A case of Klinefelter's syndrome with refractory asthma, diabetes mellitus and rib fracture

To the editor: We read with a great interest the article by Cai et al.¹ They described a good case of Klinefelter's syndrome (KS) with diabetes mellitus (DM). KS is a common abnormality of the sex chromosome, characterized by small testicles, sparse body hair, gynecomastia and hypogonadism in men with two or more X chromosomes. There has been an increased risk of DM, osteoporosis² and autoimmune disease³ for KS patients. We report a KS patient accompanying refractory asthma, DM and osteoporosis with a rib fracture.

A 43-year-old man was admitted to our hospital for an acute exacerbation of asthma in November 2010. He has suffered from asthma from an age of 3 years, and has been steroid dependent in the past 5 years. Prednisone 20 mg/d alleviated his symptoms and reduced incidences of recurrent attacks. He had a past history of type 2 DM and rib fracture without any trauma. On admission, physical examination revealed orthopnea, lips cyanosis, and lungs full of expiratory wheezes. Laboratory testing showed the total white blood cell count was mildly elevated and high eosinophils. Blood gas analysis showed type II respiratory failure. With ventilator assisted, intravenous methylprednisolone and cefoperazone/sulbactam given, his dyspnea improved. Steroids were reduced gradually and salmeterol xinafoate and fluticasone propionate powder for inhalation (salmeterol 50 µg/ fluticasone 500 µg combination) inhaled q12h was administered, but his dyspnea recurred whenever his dose of oral corticosteroid was reduced to less than 20 mg/d. His general appearance seemed eunuchoidal (Figure 1A): fair skin, scanty facial and body hair, gynecomastia, and small testes. Hormone tests show low testosterone and high leuteinizing hormone and prolactin. Head magnetic resonance imaging was normal. Total body bone mineral density showed osteoporosis. The chromosomal analysis in peripheral venous blood showed 46, XY/47, XXY (Figure 1B), which confirmed KS with a mosaic form of karyotype. Oral androgen replacement therapy (ART) was then given at 80 mg/d. The patient was discharged from hospital with prednisone 20 mg/d and salmeterol xinafoate and fluticasone propionate powder for inhalation inhaled q12h. Interestingly, his symptom improved after 3 months of ART and his prednisone was reduced to 10 mg/d successfully. Six months later his oral corticosteroid was completely ceased, and he had no further asthma attacks with just salmeterol xinafoate and fluticasone propionate powder for inhalation inhaled q12h. His quality of life improved gradually. With just androgen and salmeterol xinafoate and fluticasone propionate powder for inhalation maintenance treatment, as well as the use of short-acting β-agonist occasionally, he had no further severe attacks of wheeze for 12 months of follow up.

In the case reported by Cai et al,¹ the patient had type 1 DM, while this patient had type 2 DM and ART appeared to control his symptoms of asthma. Kocar's study found the absolute numbers and percentages of CD4⁺, plasma IL-2, IL-4 in patients with KS were higher than those in healthy control subjects, and all decreased

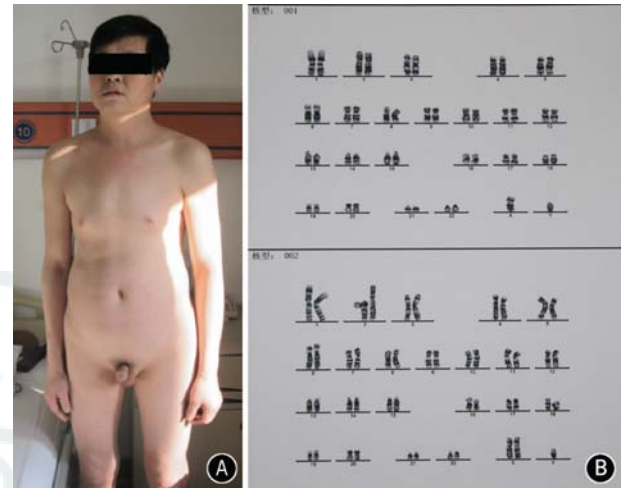


Figure 1. A: Photograph of the man. B: The chromosomal analysis in peripheral venous blood specimen showed that his karyotype was 46, XY(5)/47, XXY(25), analyzed in 30 metaphases.

after 6 months treatment with testosterone.⁴ This demonstrates that the lack of testosterone in patients with KS enhances cellular and humoral immunity, and that ART suppresses this abnormality, which can explain the effectiveness of ART in asthma management.

This patient has been delayed in diagnosis for more than 40 years. An increased awareness of KS for respiratory practitioners is critical in improving the prognosis of patients with asthma and KS.

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