The de Barsy syndrome

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SUMMARY: Arazi M, Kapıcıoğlu MİS, Mutlu M. The de Barsy syndrome. Turk J Pediatr 2001; 43: 79-84.

We report a child with de Barsy syndrome, which is a very rare, genetically transmitted clinical entity associated with mental and growth retardation, severe cutis laxa, joint laxity and various ocular and skeletal system findings. The patient was operated to treat her orthopedic disabilities. Typical findings of this case with eight-year follow-up beginning from birth are described and compared with previously reported cases. The main aim of this paper was to describe the diagnostic and therapeutic difficulties of this rarely encountered syndrome.

Key words: de Barsy syndrome, hypermobility, elastin, cutis laxa, children.

The de Barsy syndrome (BS) is rare and one of the progeria syndromes. The first case was reported by de Barsy et al.[1]. Cutis laxa, aged appearance, growth and mental retardation, joint hypermobility, facial grimacing with athetoid movements, severe myopia, cataract, corneal clouding, large helices and various orthopedic manifestations including scoliosis, dislocation of the hip joint, and severe foot and hand deformities are the main striking features[1-5]. Here we report a girl who had the characteristic features of BS.

Case Report

The patient was born in November 1989, as the third child of healthy parents who were first cousins. There were no similar symptoms in the family. The mother had five pregnancies, the second and fourth ending in miscarriages. The patient was born at term and the delivery was normal. Her birth weight was 2400 g (3^{rd}-10^{th} percentile) and length was 47 cm (10^{th} percentile). After the delivery she was admitted to various hospitals because of facial grimacing, eye abnormalities, hypotonia and foot deformities. Congenital dislocation of the right hip was diagnosed and treatment with conservative methods was attempted in another hospital at the age of six months.

She was first admitted to our clinic with unreducible dislocation of the right hip at the age of 18 months. Physical examination revealed wrinkled, thin, translucent skin over all parts of the body; large and low-set helices; sparse and fine hair; and long and narrow face (Fig. 1). Her weight was 9300 g (10^{th} percentile) and length was 75 cm (10^{th} percentile). Her general appearance was aged. She had congenital vertical talus deformity on the right and club foot on the left (Fig. 2). Extreme hyperlaxity of the small joints and bilateral adduction deformity of the thumbs were also observed.

X-ray findings verified dislocation of the right hip joint and vertical talus on the right and club foot on the left. Pulmonary x-ray and abdominal sonography were normal. Ophthalmologic examination revealed bilateral conjunctivitis; the fundus was normal. Neurological examination revealed a moderate muscular hypotonia. The chromosomal analysis and routine blood studies were normal.

For histopathological studies of the skin biopsies, the tissue sample was processed for both T-lymphocyte specific alpha-naphthyl acetate esterase demonstration[6] and elastic fiber staining[7]. Collagen fiber were stained with Crossman's trichrome stain[8]. Plasma cell counts were determined on methyl green-pyronin stained sections using a square ocular micrometer. The elastic fiber of the dermis were observed as extremely reduced in number, shortened, broadened and also frayed in some localized areas (Fig. 3a). Epidermis was rather thin and characterized by hyperkeratosis. Collagen fiber of the dermis were normal (Fig. 3b). There were no histological findings suggesting immunological reactions such as infiltration of T-lymphocytes or increase in plasma cells in the area.

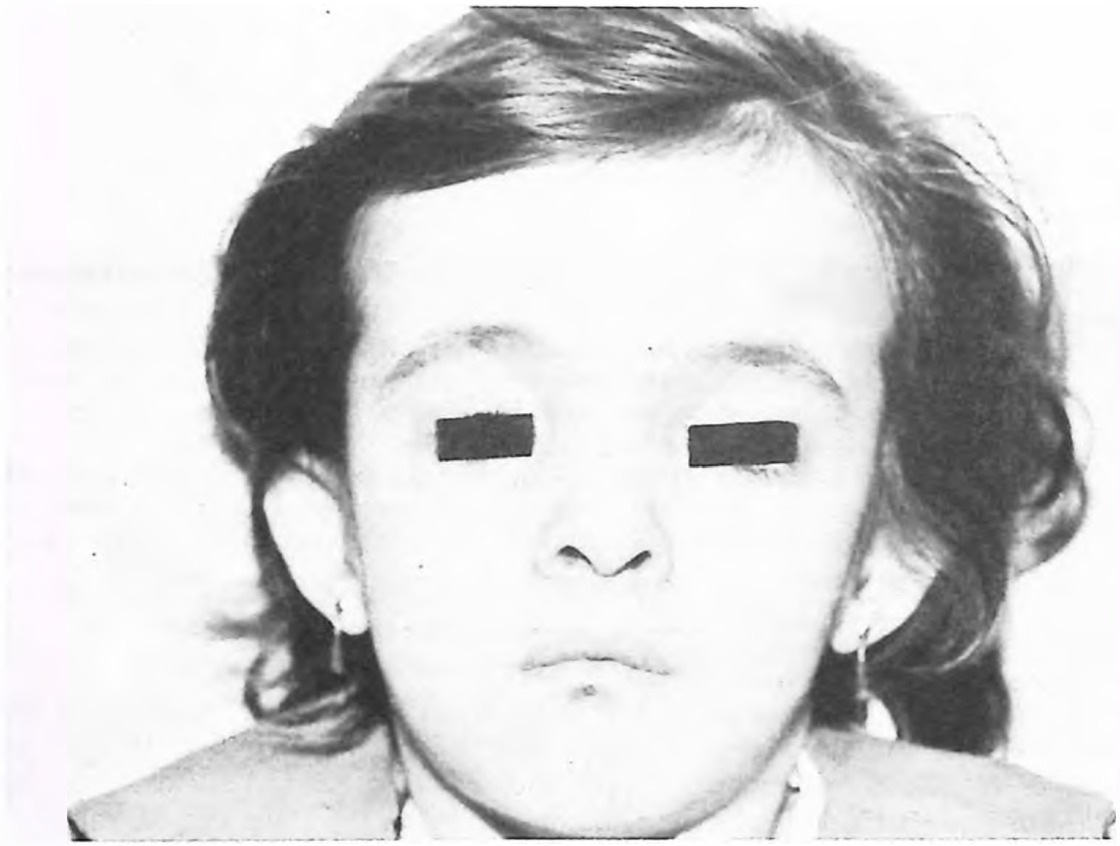


Fig. 1. Typical facial appearance. Note high forehead, large and low-set helices and sparse hair.

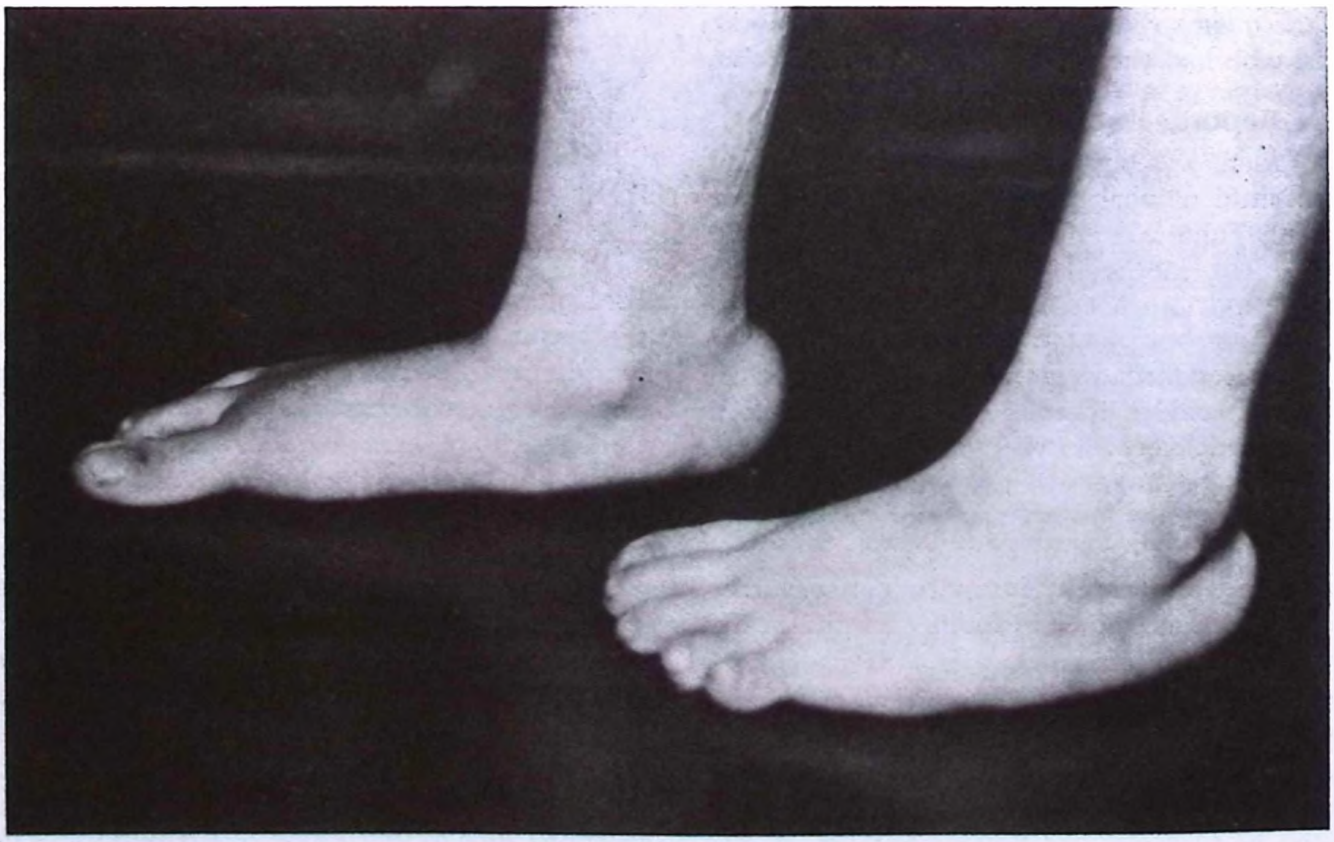
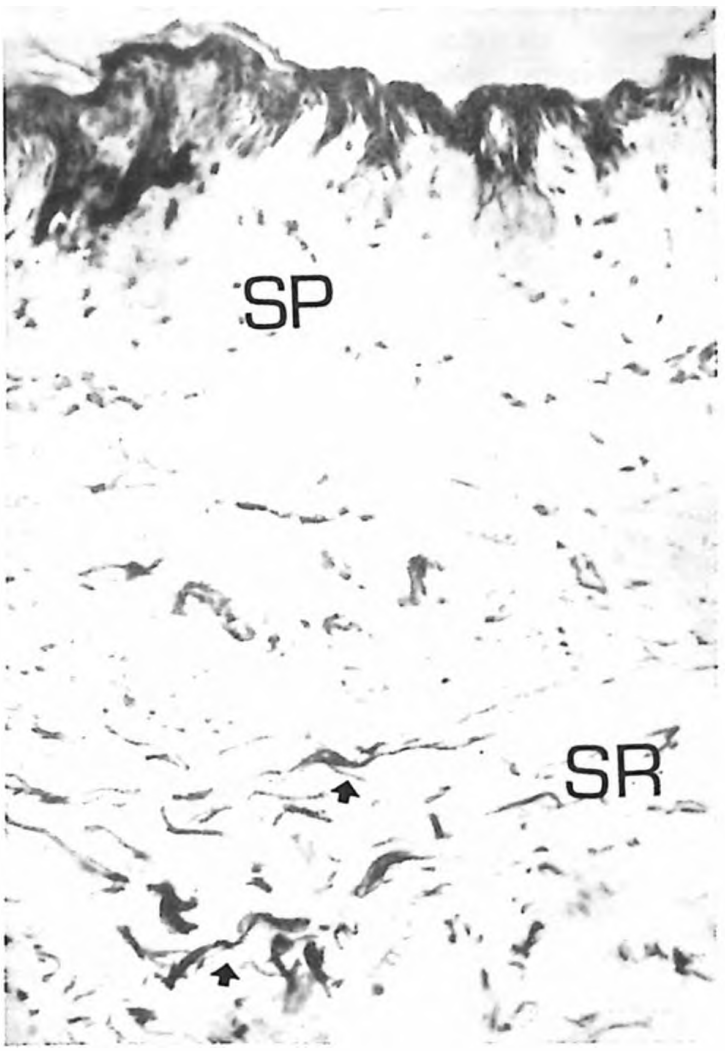


Fig. 2. Convex pes planovalgus deformity of the right foot secondary to vertical talus and club foot of the left can be seen.



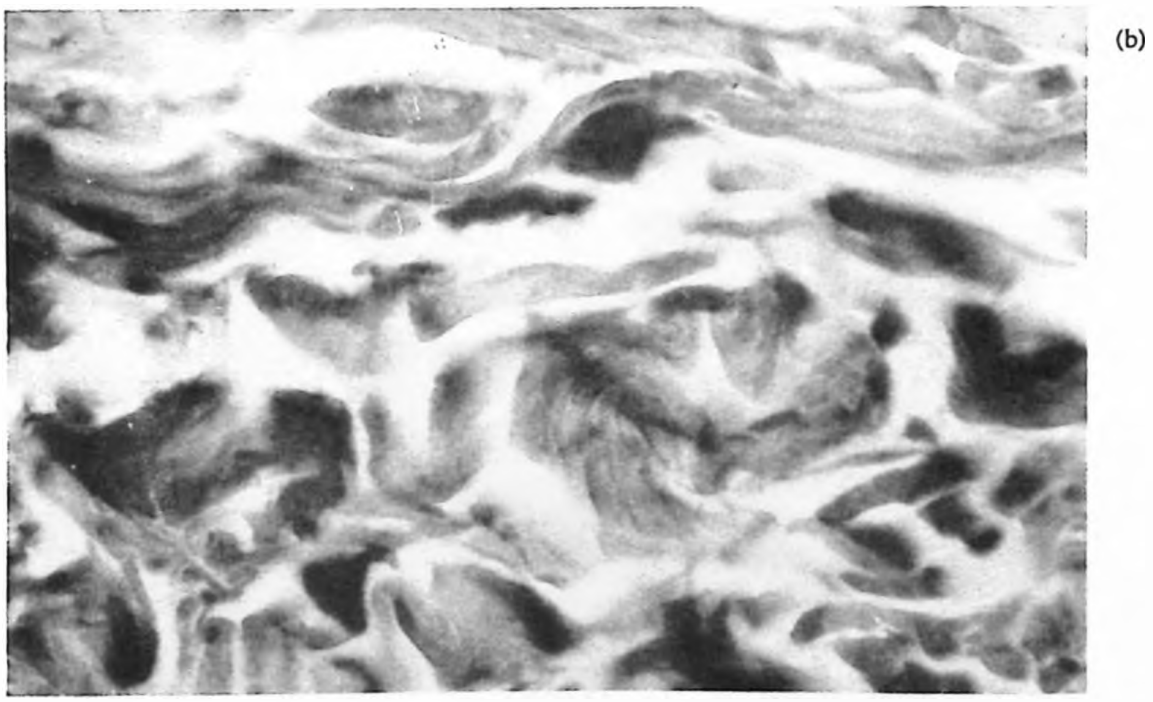
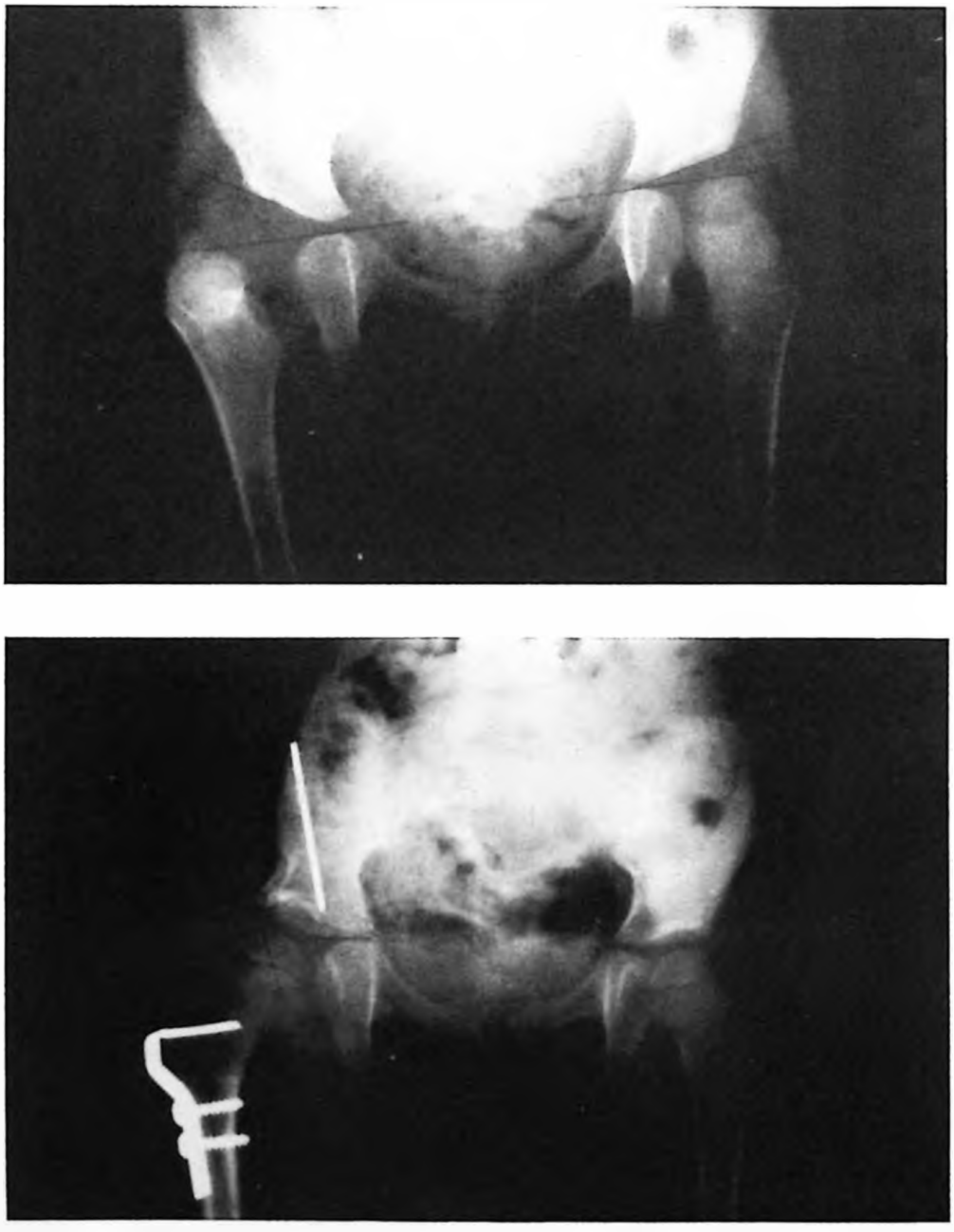


Fig. 3a, b. Histological appearance of the skin demonstrating a marked reduction in the number of shortened and frayed elastic fiber (arrows) in the reticular layer (SR) of the dermis. There were no elastic fiber in either papillary layer (SP) or dermal papillae (Verhoeff's elastic fiber stain, X260), (A); Well-stained thick bundles of Type-I collagen fiber in the reticular layer of dermis (Crossman's trichrome stain, X60) (B).

The patient was treated for her orthopedic disabilities in our clinic. Anterior open reduction and Salter innominate osteotomy were performed at the age of 18 months for redislocation of the previously treated hip. Redislocation was noticed two months later, so we operated the hip again, and re-reduction of the hip with proximal femoral varus-derotation osteotomy was performed. Painless and full range of motion of the hip was observed at 4.5-year follow-up. X-rays showed acceptable reduction (Figs. 4a, 4b). Foot deformities were also treated surgically at the age of three years. Posteromedial soft tissue release was performed for club foot deformity and open reduction of the talonavicular joint with soft tissue release was performed for vertical talus. Since she was too young, a bony procedure such as subtalar arthrodesis was not performed for the vertical talus deformity. At five years of age, moderate residual metatarsus adductus deformity on the left foot was treated with tarsometatarsal and intermetatarsal capsulotomy operation. Mild pes planus on the right foot and minimal forefoot adduction on the left foot were observed, but the feet were painless and functional at the age of six years.



Figs. 4a, b. Initial pelvic radiograph of the patient at the 18th month. Note the unreduced dislocation of the right hip joint (A). Radiographic appearance of the hip joint at the age of six years seen relatively normal after two consecutive operations (B).

At eight years of age, weight was 18 kg (3rd-10th percentile) and height was 117 cm (3rd-10th percentile). Slight residual foot deformities persisted, but she was able to walk without any support. We thus did not plan any further operation for residual foot deformities. Minimal impairment of intellectual status was recorded, and ophthalmologic re-examination at this time revealed severe myopia (right eye: -8.0 dioptri, left eye: -8.0 dioptri) and microcornea in both eyes.

Discussion

To date, 14 cases of BS have been reported in the English literature[1-5,9-11]. It is interesting that five of the previously reported patients with this syndrome were reported from Turkish children. Four cases were from the same Turkish family[9] and the fifth was a six-month-old Turkish boy[11].

The orthopedic manifestations in BS, including dislocation of the hip, vertical talus, scoliosis, hand deformities, and hypermobility of the joints, were described by Stanton et al.[4] in 1994 This was the first detailed study about orthopedic features of the syndrome. Dislocation of the hip was the most commonly reported orthopedic manifestation in previous reports[3,4,11]. Stanton et al.[4] expressed that management of the mentioned deformities are usually complicated. They advised long-term cast application after hip surgery to prevent redislocation of the hip joint because of generalized ligamentous laxity. Our results supported this finding. The presented patient had been unsuccesfully treated for dislocation of the right hip when she was admitted to our institution. Nevertheless, two further operations were required for treatment of the dislocation. She also had a severe club foot deformity and required a second operation for residual deformity.

In previous histopathological studies, elastin structure of the dermis was reported as abnormal in BS[1,3,9,11]. Pontz et al.[11] Reported that the collagen fiber were normal. We had similar findings in our case. The histopathological results confirmed cutis laxa.

Intellectual impairment has been reported in a wide range from severe mental retardation including no speech, athetoid movements, grimacing and generalized hyperreflexia to normal mental status[1-4,5,9,11]. The presented case had slight intellectual impairment; however, she was able to attend primary school at the last examination.

No chromosomal anomaly was reported in all described cases. The presented patient's analysis was also normal. Consanguineous marriages were responsible in some cases and this finding suggested an autosomal reessive inheritance[3-5,9].

Ophthalmologic symptoms are corneal clouding, cataract, esotropia and severe myopia[10,11]. Fundus is usually normal. In our patient, severe myopia, recurrent and persistent conjunctivitis and microcornea were observed. Microcornea has not been reported in previous cases.

The BS should be considered in the differential diagnosis of cutis laxa, in early life. Pediatricians and orthopedic surgeons who have major roles in the management of this syndrome should be alert to this very rare and difficult to treat syndrome.

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