

## A Case of Tuberous Sclerosis Without Mental Retardation

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*A 30-year-old mechanical engineer suffering multiple asymptomatic papules on his face, especially around the nose was diagnosed as tuberous sclerosis. He had also Shagreen patches on his lumbosacral region, periungual fibromas on his toes. He had no history of seizure although there were small periventricular calcifications on cranial CT. We could not find any other features of tuberous sclerosis. The case was presented because of the patient's normal mental status and literature on this issue was reviewed. [Journal of Turgut Özal Medical Center 1996;3(3):206-209]*

**Key Words:** Tuberous sclerosis, Bourneville-Pringle's disease, epiloia

### Mental retardasyonu olmayan bir tüberoskleroz vakası

*30 yaşında bir makina mühendisi, yüzünde, özellikle burun civarındaki çok sayıda kabarıklıklar sebebiyle başvurdu. Adenoma sebaceum olarak değerlendirilen bu lezyonlar, estetik kaygı dışında bir şikayete yol açmıyordu. Hastada ayrıca, lumbosakral bölgede Shagreen plakları ve ayak parmaklarında periungual fibromlar olduğu görüldü. BT'de minimal periventriküler serebral kalsifikasyonlar vardı. Diğer fizik muayene ve laboratuvar bulguları bir özellik göstermiyordu. Zeka gelişmesi normal ve yüksek öğrenim görmüş olan bu vaka sunuldu ve literatür gözden geçirildi. [Turgut Özal Tıp Merkezi Dergisi 1996;3(3):206-209]*

**Anahtar Kelimeler:** Tüberoskleroz, Bourneville hastalığı, Pringle hastalığı, epiloia

Tuberous sclerosis (TS) is a multi-system disease involving the brain, skin, kidneys, heart and other visceral organs. It is also named as Bourneville-Pringle's disease and epiloia (epilepsy, low intelligence, adenoma sebaceum). The disease is inherited as an autosomal dominant trait with variable penetrance and a high spontaneous

mutation rate. The causative lesions of the disease are hamartomas in the nervous system and other organs. Although strongly variable in its features, manifestations are typically characterized by involvement of the central nervous system (early childhood seizures), skin (facial angiofibromas) and kidneys (angiomyolipomas) (1-4).

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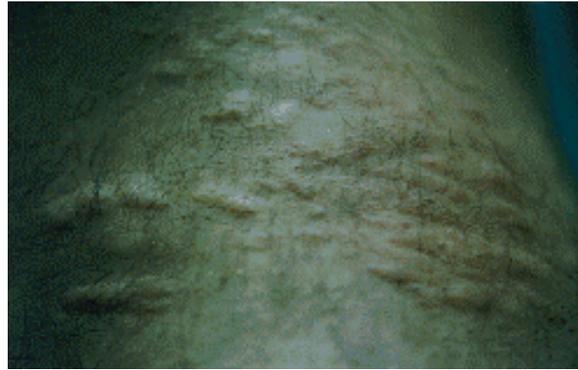
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**CASE:** A 30-year-old male mechanical engineer was suffering from some papular lesions on his face. The lesions were asymptomatic except their appearance. Dermatologic examination revealed numerous tiny papules on his face, especially around the nasolabial sulcus and on the chin (Figure 1). The patient had also several linear fibromatous patches (shagreen skin) on his lumbosacral area in a bilateral pattern (Figure 2) and several periungual fibromas (Koenen's periungual tumors) around his toenails. Wood's light examination for ash-leaf macules was negative. He was healthy otherwise and had no history of seizures. A cranial noncontrast and contrast enhanced CT was performed. CT examination revealed only small periventricular calcifications (Figure 3). Pelvic and abdominal ultrasonographic examinations were normal. There were also no pathologic findings on ophthalmologic, neurologic, and electroencephalographic examinations. Retinoic acid 0.1% cream was applied to the adenomas as a keratolytic. The patient is still on our control.



**Figure 1.** Close view appearance of adenoma sebaceums



**Figure 2.** Shagreen patches on lumbosacral region

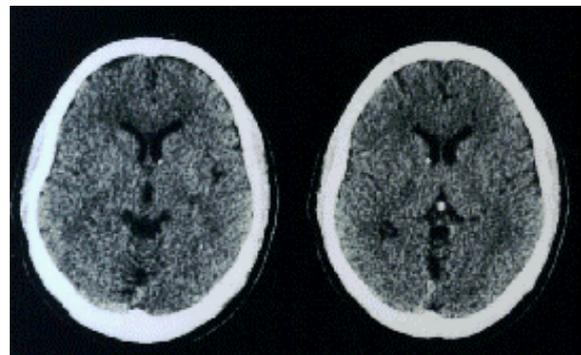
The description of the disease was provided by D.M. Bourneville who, in 1880, reported and named as tuberous sclerosis the neuropathological findings in a young patient with seizures, hemiplegia, and mental subnormality who also had renal tumors (7).

Cutaneous features of the tuberous sclerosis include adenoma sebaceum, forehead fibrous plaques, subungual fibromas, shagreen patches, ash-leaf like hypomelanotic macules, skin fibromas, oral papillomatosis, café au lait spots, and angiokeratomas. Approximately 95% of the patients exhibit skin signs. Although there is considerable variation in the age of expression of all the skin lesions, there is a trend towards the earlier expression of hypomelanotic macules and forehead fibrous plaques compared with facial angiofibromas and ungual fibromas. Shagreen patches are usually present by puberty. Periungual fibromas appear for the first time as late as the fifth decade (4,8).

Tuberous sclerosis can manifest itself by multiple facial papules and nodules affecting primarily the nose, cheeks, chin, and the nasolabial

## DISCUSSION

Tuberous sclerosis complex is a hamartomatosis characterized by the widespread development of benign tumors classified as hamartoma and affecting up to one in 6000 to 10000 newborn infants. It is an autosomal dominant syndrome with prominent cutaneous and brain involvement and is often associated with seizures and mental retardation. The disease can also result from spontaneous mutations. Approximately 60% of tuberous sclerosis occurs as apparent sporadic cases (1,4-6).



**Figure 3.** Small cerebral calcifications in subependymal area on contrast enhanced CT

folds and these lesions can cause a cosmetic deformity or can produce difficulties with hygiene and nasal breathing. These pathognomonic lesions are present in 90 per cent of patients. Our patient had numerous small angiofibromas on his face and they are a cosmetic problem for him. They had presented for at least 10 years and slowly increased in numbers.

Although hypopigmented macules are an important and early (first) manifestation of tuberous sclerosis, the prevalence of hypopigmented macules in the general population has been underestimated. The presence of a few hypopigmented macules on the skin of an otherwise healthy individual without a family history of tuberous sclerosis need not prompt an evaluation to rule out this disorder (9). Ash-leaf macules can present in about 85% of patients. We could not find any white macule on our patient.

Shagreen patches are connective tissue nevi and found on the trunk, especially on the lumbosacral region. They occur about 40% of patients with epiloia and develop in the first decade of life (3,4). Our patient had bilateral prominent shagreen patches on his lumbosacral area in a dermatomal distribution.

Peri- and subungual fibromas (Koenen's tumor) are distinctive features for tuberous sclerosis. They are angiofibromas in nature and present approximately 50% of patients (3,4). There were several periungual fibromas on our patient's toes.

Extracutaneous manifestations of tuberous sclerosis are very rich. Brain lesions consist of subependymal hamartomas and tubers. The most common site of hamartomas is cerebrum. Both cortical and subependymal lesions can undergo age-dependent calcification. Involvement of the brain can result in persistent seizures, mental retardation, learning and sleeping disorders. Seizures and mental deficiency may occur early in life and are variable in severity and they are estimated to occur in 40 to 90% of patients (4,10). Our patient had no mental disorder. On CT, calcifications are seen as projections along the ventricular surface, more commonly along the medial wall. They usually have a density similar to that of the adjacent brain parenchyma and do not enhance following contrast enhancement (11). Noncalcified hamartomas may be difficult to demonstrate on CT. MR images are more sensitive for the detection of these. (12). In

contrast enhanced CT of our case, there were only small parenchymal calcifications in subependymal area.

Other systems and organs such as eyes, kidneys, bones, heart, lung, and gastrointestinal system can also be affected in tuberous sclerosis complex (13-15). Our investigations by ophthalmologic, neurologic, and psychiatric examinations, EEG, pelvic and abdominal ultrasonographies, and chest CT were all normal in the patient.

Recent studies suggest genetic heterogeneity, with at least two gene loci on chromosomes 9, 16, and perhaps 11. Identification of the two tuberous sclerosis genes should illuminate the pathogenesis of the disease and provide opportunities for genetic counseling, prenatal diagnosis, and therapeutic intervention (3,4).

A simple tangential (shave) excision of these facial tumors is believed to be adequate treatment for some patients. Shaving and dermabrasion of the involved area produce very satisfactory results, but long-term follow-up reveals that there is a variable amount of recurrence and that subsequent treatment will be required (16). We used a keratolytic agent for tiny papular lesions present in the patient.

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