INCONTINENTIA PIGMENTI*

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Incontinentia pigmenti is considered an ectodermal and mesodermal developmental anomaly with early manifestations consisting of bullous and vesicular cutaneous lesions in the neonatal period or infancy. These lesions gradually change, developing pigmented areas with a characteristic pattern—a manifestation that helps to distinguish this syndrome from any other pigmentary dermatoses.

The syndrome was described for the first time in 1925 by Bardach. The same year Bloch[1] published another case. Sulzberger,[2] in 1928, reviewed the subject extensively, adding four new cases of his own. In his review in 1951, Carney[3] collected 37 cases from the literature and in 1954 Franceschetti and Jadassohn[4] brought the number of published cases to 76. Another interesting case was the one reported by Jensen.[5] This patient had marked ocular lesions and had a strongly positive serum reaction for toxoplasmosis.

The first case in Turkish medical literature was published by Tat[6] in 1955. However, this could not be considered exactly as a case of Bloch-Sulzberger syndrome because in that particular case the disease had started during adulthood. The patient presented here, then, is the first case of incontinentia pigmenti in Turkish literature which can surely be classified as an example of the Bloch-Sulzberger syndrome.

Case: N. Y., a two year old girl, was brought to our clinic with a chief complaint of inability to walk or talk, and severe mental retardation. According to the parents, the infant was found to have a very high fever at the age of twelve days. A few days after that, the parents noticed a macular erythematous rash over her body and extremities. Later on these lesions became vesicular and bullous. The parents do not remember how long the lesions stayed in this stage, but they remember that they healed spontaneously, leaving pigmented areas. At the height of the fever, she was observed to have generalized convulsions. She sat alone at the age of one year and teething was observed to commence at the age of 15 months. Consanguinity between the parents was denied. Physical examination

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revealed a female infant weighing 13.50 kg., lying in bed, apparently not interested in her surroundings. She had some purposeless movements and was unable to talk. Head circumference was 43.5 cm. and she was unable to hold her head up longer than a few seconds. The fontanel was clinically closed and she had bilateral internal strabismus. The fundoscopic examination was essentially normal. The most striking finding was bizarre and linear pigmentation on the sides of the trunk and over the inguinal and axillary regions and partly on the upper extremities. These were peculiar light brown pigmentations forming unusual patterns such as whorls, spidery shapes, and bizarre lines (Figures 1 and 2). She was severely mentally retarded. Blood chemistry was essentially normal and no phenyl pyruvic acid could be found in the urine. VDRL was negative. The skin biopsy was characteristic for incontinentia pigmenti, as will be described below.

Fig. 1.

Discussion

This condition seems not to be as rare as was once thought. For pediatricians, the most important diagnostic aspect of this syndrome seems to be the vesicular stage, which is usually observed during the neonatal period. Incontinentia pigmenti should be considered in the differential diagnosis between various vesicular skin lesions of the newborn. The conditions to be ruled out before one thinks of this syndrome are pemphigus neonatorum, congenital

syphilis, epidermolysis bullosa, dermatitis herpetiformis, contact dermatitis, herpes simplex, chickenpox, smallpox, Kaposi's disease and bromide poisoning. Among these all but two can easily be diagnosed by history and by proper bacteriological and serological

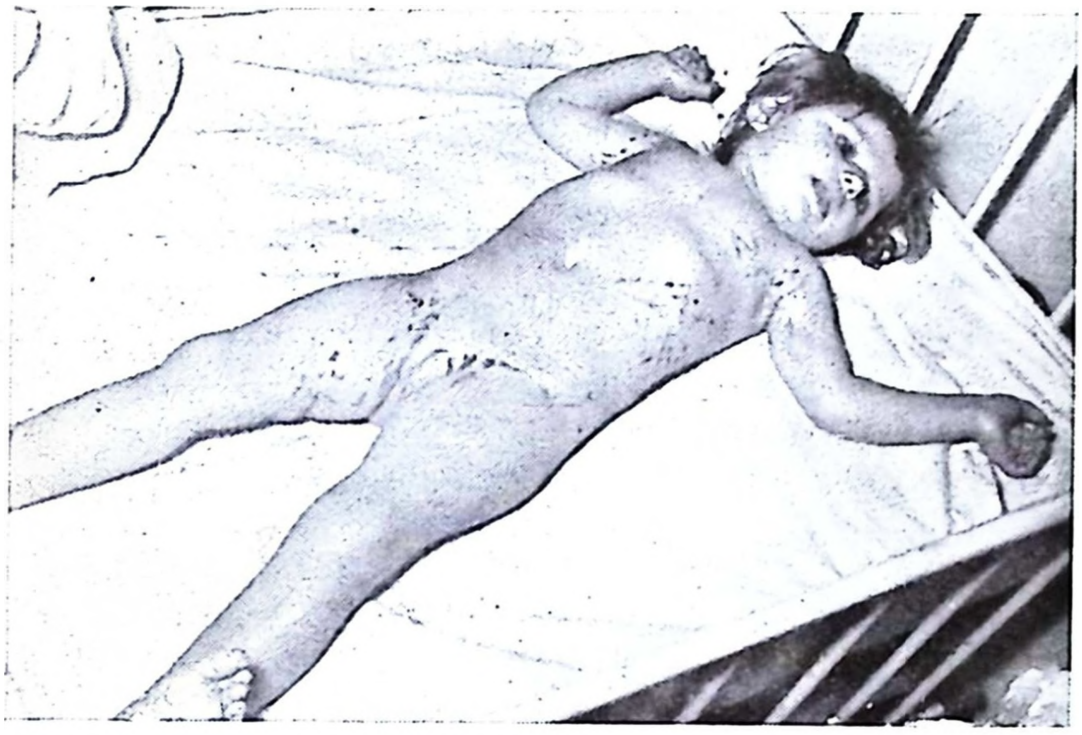

Fig. 2.

examinations. However, epidermolysis bullosa and dermatitis herpetiformis may sometimes prove to be very difficult to diagnose. The first condition differs from incontinentia pigmenti in the fact that the vesicles are much thinner and more widespread than those seen in incontinentia pigmenti. Furthermore, the fluid in these lesions is rather thin and copious in contrast to the thick and yellowish discharges obtained from the vesicles of incontinentia pigmenti. The vesicles in the latter condition are quite hard and display a linear arrangement.

Dermatitis herpetiformis may be differentiated from this syndrome by the absence of linear arrangement of its vesicles.

The skin manifestations of incontinentia pigmenti appear either at birth or in the first few weeks or months of life. First, there are erythematous macules and papules which gradually turn into vesicles and bullae. These bullae may disappear and recur for many weeks, and at the end, give way to pigmented macules. The appearance of this pigmentation, as described above, is extremely unusual. There may be whorls or spider shapes or bizarre lines. Their color varies from very light to very dark brown. Generally they are strictly macules; however, sometimes they may be slightly elevated from

the skin, or at other times, may be slightly depressed.[7] As is the case in our patient, they are mostly over the sides of the trunk, the perimammary areas or the extremities. Most of the time, in addition to these pathognomonic cutaneous findings, there are other ectodermal and mesodermal defects. These include deformities of the bone, delayed or imperfect dentition, spastic paralysis, microcephaly, epilepsy, mental retardation, retarded growth and development, etc. Ocular abnormalitites such as retrobulbar glioma, cataracts, corneal opacity, optic atrophy, strabismus, or nystagmus may be seen. In our case, delayed dentition, epilepsy, microcephaly, retarded growth and development, mental retardation, and strabismus were present. The disease occurs predominantly in females. However, five cases have been reported in males.

The histology is very characteristic. The most diagnostic finding is the presence of large quantities of dark melanin granules in the upper and middle cutis in the phagocytes, or chromatophores, indicating a downward migration of the melanin pigment from the basal cells of the epidermis, where it is formed, instead of being transported upwards for eventual elimination. This finding constitutes the reason for naming this syndrome incontinentia pigmenti. Recently many investigators[8] have objected to the term "incontinentia pigmenti" because they object to the assumption of incontinence of the basal layer of the epidermis. One author[9] has pointed out that no migration of pigment has been observed, since the pigment granules in the basal cells of the epidermis and in the corium have their own pigment production. Furthermore, in some cases, it is shown that there is no lack of pigment in the basal layers to indicate pigment migration. In spite of these rather justified criticisms, the term "incontinentia pigmenti' seems here to to stay because it has become so familiar by widespread use.

Recently Cramer and Schmidt[10] have pointed out the diagnostic value of eosinophils in the blood as well as in serum taken from these bullous lesions. According to Franceschetti and Jadassohn[4] the term "incontinentia pigmenti" has been used for two separate syndromes. They claim that in addition to the cases described above, which constitute a very great majority, there are others in which the disease starts around two years of age. It does not usually start with inflammatory lesions nor do these cases demonstrate any dental abnormalities. They call these cases the Naegeli type and the others the Bloch-Sulzberger type. However, there certainly must be other variants which could not be introduced into any of these types, like the cases of Kitamura and Hirako[11] and of Tat.[6]

Opinions vary concerning the etiology of this condition. Some suggest a maternal and fetal viral infection, and others, like Epstein,[12] feel that the clinical pigmentation is secondary to inflammation and that the inflammation itself is secondary and is a reaction to an epidermal anomaly which must have originated during fetal life, if it is not genetically determined.

The treatment of this condition is essentially symptomatic; antibiotics are used during the bullous stage to control secondary infections. Findlay[13] reported using cortisone in one case with temporary success.

REFERENCES

1. Bloch, B.: Eigentümliche bisher nicht beschriebene pigmentaffektion (Incontinentia Pigmenti). Schweiz. Med. Wochenschr., **56**: 404, 1926. Quoted in reference 7.
2. Sulzberger, M. B.: Über eine bisher nicht beschriebene congenitale pigmentanomalie (Incontinentia Pigmenti). Arch. f. Dermat. u. Syph., **154**: 19, 1928. Quoted in reference 8.
3. Carney, R.G.: Incontinentia pigmenti; a report of five cases and a review of the literature. Arch. Dermat. Syph., **64**: 126, 1951.
4. Franceschetti, A., and Jadassohn, W.: Incontinentia pigmenti: differentiation of two syndromes appearing under the same name. Dermatologica, **108**: 1, 1954.
5. Jensen, V.: Acta Psychiat.et Neurol. Scandinav. Suppl. 108, **5**: 197, 1956. Quoted in reference 8.
6. Tat, A. L.: Türkiyede ilk incontinentia pigmenti vakası. Tıp Fakültesi mecmuası, **7-8**: 238, 1955.
7. Newcomer, V. D., Zeilenga, R. H., and Sternberg, T. H.: Uncommon congenital abnormalities of the skin. Ped. Clin. North Am., p. 702, Aug. 1956.
8. Oldfelt, V.: Incontinentia pigmenti. J. Pediat., **54**: 446, 1959.
9. Undeutsch, U., Undeutsch, W., and Scheid, P.: Ztschr.f. Kinderh., **74**: 484, 1954. Quoted in reference 8.
10. Cramer, J. A., Schmidt, W.: Incontinentia pigmenti. Report of six cases. A.M.A. Arch. Dermat., **71**: 699, 1955.
11. Kitamura, K., and Hirako, T.: Über zwei Japanische Faelle einer eigenatigen retikularen pigmentierung. Dermatolgica, **110**: 87, 1955. Quoted in reference 6.
12. Epstein, S., Vedder, J. S. and Pinkus, H.: Bullous variety of incontinentia pigmenti (Bloch-Sulzberger). Arch. Dermat. Syph. **25**: 557, 1952. Quoted in reference 7.
13. Findlay, G. H.: On the pathology of incontinentia pigmenti with observations on associated eye disturbances resembling retrolental fibroplasia. Brit. J. Dermat., **44**: 141, 1952. Quoted in reference 7.