Partial Unilateral Lentiginosis: Clinicopathologic Review of 13 Cases

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Background **: Partial unilateral lentiginosis (PUL) is a rare pigmentary disorder characterized by grouped multiple lentigines on otherwise normal skin that histologically have the typical features of lentigo. This entity has been only rarely reported in the Korean population.**

Objective **: The purpose of this study was to evaluate clinical and histopathologic characteristics, association with other disorders, and differential diagnosis of PUL.**

Methods **: We reviewed our experiences of thirteen cases of PUL which had been collected in our dermatology clinic during the 6-year period between 1993 and 1998.**

Results **: Twelve patients were female and one was male. In 3 patients the lesions appeared after the age of 20 years. Ten patients had the lesions on the upper part of the body, the neck being the most common location. No bias was shown in terms of the side of the body affected. Cafe-au-lait macules (one to three) were found in six patients, axillary freckles were observed in two. Histopathologic examination of biopsy specimens commonly showed hyperpigmentation of the basal layer, elongation of rete ridges, and an increased number of melanocytes. There was no evidence of associated disorders or family history.**

Conclusion **: Based on this data, we confirmed that PUL is a benign, idiopathic lentiginosis with no commonly associated abnormalities. Furthermore, we believed that PUL is not uncommon in Korean people. (Ann Dermatol 12(2) 90~94, 2000).**

Key Words : Partial unilateral lentiginosis, Korean people

Partial unilateral lentiginosis (PUL) is a rare pigmentary disorder charaterized by a circumscribed grouping of small pigmented macules on otherwise normal skin. It often forms a segmental pattern, that histologically shows a lentiginous epidermal proliferation of melanocytes[1]. This entity was first described by McKelway[2] in 1904. Since then, about 35 cases have been reported under various names including unilateral lentigines, lentiginous mosaicism, segmental lentiginosis, zosteriform lentiginous nevus, and agminated lentiginosis[3]. Although most cases reported had no associated disorder, some of them showed neurological, endocrinological, and haematological alterations. Recently, some cases of PUL associated with segmental neurofibromatosis have been reported[4-6] and it has been suggested that PUL is possibly a forme fruste of neurofibromatosis[1,7].

The disease was reported to be more frequent in whites, with only two black patients reported[8]. In the Korean literature, only six cases have been reported[9-11]. In this study, we reviewed 13 Korean patients of PUL and described its clinical and histopathologic characteristics, association with other disorders, and differential diagnosis.

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MATERIALS AND METHODS

We reviewed the clinical records of thirteen pa-

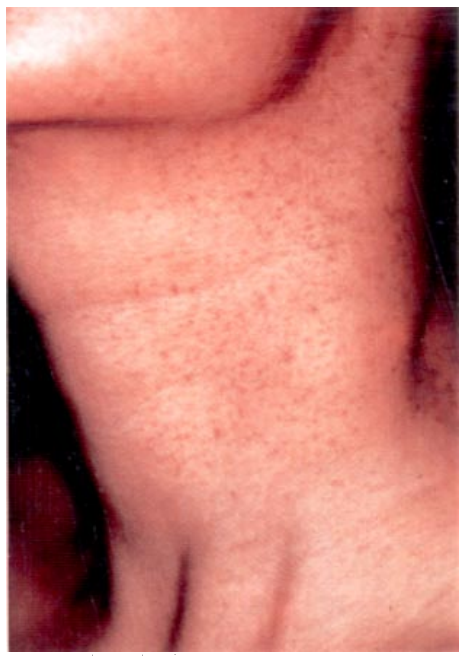

Fig. 1. Case 1. Diffuse multiple lentigines involving the left neck with sharp demarcation at the midline.

tients who had been diagnosed with PUL between 1993 and 1998. All patients presented with small, circumscribed, light brown macules, which were arranged in a segmental pattern and confined to a localized area of the body. A thorough medical history was obtained and a complete medical examination was performed on all patients. In each patient a biopsy specimen of the lesional skin was obtained, formalin-fixed, and stained with hematoxylin-eosin and Fontana-Masson. Patients were followed up for 1 to 6 years.

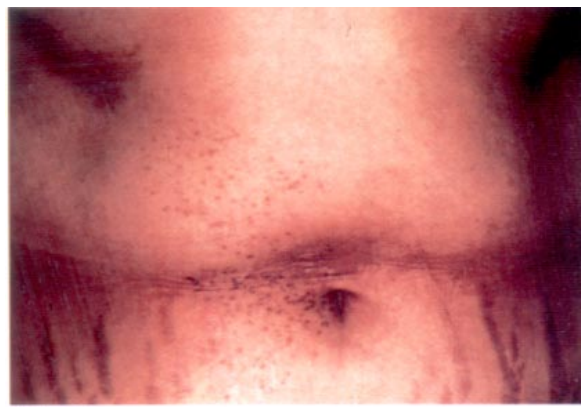

Fig. 2. Case 9. Unilateral lentiginosis involving the right half of the lower abdomen.

RESULTS

Clinical data is summarized in Table 1. From a total of thirteen patients examined twelve were female. The average age at diagnosis was 27 years (range 7 to 41 years). The average age at the onset of lesions was 14 years (range 6 to 26 years); in no case were the lesions present at birth. In 10 cases the lesions appeared on the upper part of the body: neck, shoulders, axillae, arms, chest, and upper back (Fig. 1). In three patients the lesions developed on the lower abdomen, inguinal area, buttocks and/or thighs (Fig. 2). Right to left side of body involvement was almost equal (7:6). There was no familial occurrence of PUL whatsoever. Apart from the PUL lesions, six of our 13 patients had one to three café-au-lait macules ranging in diameter from 10 to 15 mm, and in two

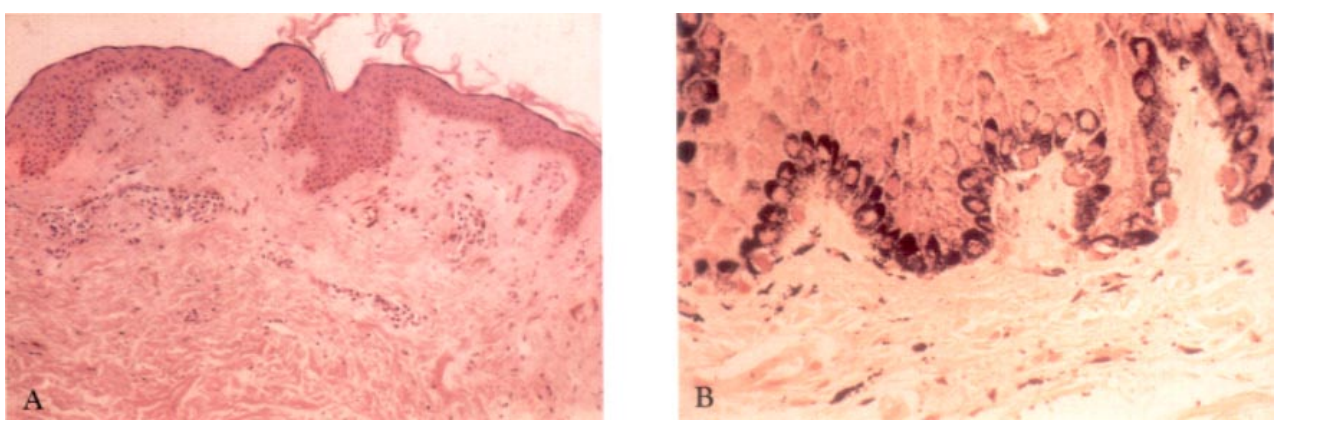

Fig. 3. Case 2. A. A slight elongation of rete ridges and hyperpigmentation of the lower epidermis, B. a moderate increase in the amount of melanin in the basal melanocytes and keratinocytes (A: H&E, × 100, B: Fontana-Masson, × 400).

Table 1. Clinical features of 13 patients with partial unilaterlal lentiginosis

Case	Sex/ Age (yr)	Age at onset (yr)	Sites of lesions	Other cutaneous abnormalities
1	F/41	26	Lt. neck	-
2	F/37	17	Lt. neck	Melasma
3	F/20	10	Lt. neck	-
4	F/21	21	Rt. neck, shoulder	-
5	F/14	14	Lt. neck, chest, axilla, shoulder	Facial and axillary freckles 1 CAL
6	F/18	9	Rt. thigh	-
7	F/22	21	Rt. upper arm	-
8	F/40	14	Rt. mid back	-
9	F/40	14	Rt. lower abdomen	1 CAL
10	F/26	12	Lt. mid back	1 CAL Cicatrical alopecia
11	F/37	15	Lt. chest, axilla, upper arm	Axillary freckle 1 CAL
12	M/7	6	Rt. neck, chest, abdomen	3 CAL Atopic dermatitis
13	F/31	6	Rt. lower abdomen, buttock, inguinal area	1 CAL

CAL: cafe-au-lait macules

cases axillary freckles were also observed. In none of the 6 patients with cafe-au-lait macules were the macules confined exclusively to the area of the PUL. Facial freckles, melasma, cicatrical alopecia or atopic dermatitis were observed in one patient apiece. All 13 patients were healthy and had no evidence of extracutanous manifestations. No physical or intellectual impairment was noted.

The biopsy specimens revealed hyperpigmentation of the basal layer, elongation of rete ridges, and an increased number of melanocytes, which was typical of lentigo simplex (Fig. 3). Atypical melanocytes were not found in any of the specimens.

During the 1- to 6-year follow-up, there was no change of the lesions, nor any occurrence of further cutaneous or systemic disorders.

DISCUSSION

The populational incidence of PUL is unknown, but the condition is generally believed to be uncommon because of the small number of reported cases. Only 6 cases have been reported in Korean literature to date[9-11]. However, it is our clinical experience, that PUL is not such a rare entity in Korean people because we have dealt with 13 cases in 6 years. During the same period, only 4 cases of speckled lentiginous nevus (nevus spilus), which clinically resembles PUL, had been dianosed in our dermatology clinic. Similarly, Pique et al[12]. reported seven cases in 2 years, and Trattner and Metzker[13] described nine patients in 8 years. Thus, this apparent rarity may be due to either relatively little attention paid to this disease or to the lack of awareness of the condition amongst dermatologists.

On the basis of larger scale published work, it would appear that there is no racial or sexual preference[12,13]. At first sight our study seems to contradict this statement as twelve of thirteen patients were female. However, this observation is thought to be due to the greater likelihood of females to seek medical attention for ostensibly cosmetic problems. In the case of PUL the age of onset is usually early childhood, although in two patients the lesions were reported to be present at birth[14,15]. In two patients of our series the lesions appeared after the age of 20 years, which has not been reported previously. These examples suggest that adult onset of the

lesions after childhood may be possible in some cases of PUL. Lesions may be located at various sites, although two recently published comprehensive series revealed more involvement of the upper body[12, 13]. In this work, 10 patients had lesions on the upper part of the body. The neck was most frequently involved (6 patients). The right and the left sides were equally affected. In all 13 patients no familial occurrence of PUL was found.

The more extensive cases of PUL have been reported in association with diseases of the central nervous system, including Jacksonian seizure, intracranial vascular malformation, and mental retardation[2, 7, 16]. In contrast, cases with limited involvement, as shown in our patients, have no associated neurologic manifestations. Furthermore, although there have been some descriptions of other associated abnormalities such as familial goiter1, sickle cell anemia[8, 17], iron deficiency anemia[12], celiac disease[13], or bronchial asthma[13], these associations are believed to be coincidental because they are largely unsubstantiated. Other cutaneous disorders have been described in association with PUL, including vitiligo[12, 13] acanthosis nigricans[13] and cutis mamorata[13]. Associated cutaneous abnormalities in our patients included facial freckles, melasma, cicatrical alopecia, and atopic dermatitis.

Although the pathogenesis of PUL is unknown, it has been suggested that chromosomal mosaicism confined to neural crest melanoblasts may have some role in the disorder[3, 16]. Davis and Shaw[17] described an unusual mosaic-like distribution of lentigines. They postulated that the patient had true genetic cellular mosaicism and suggested that such mosaicism is not unusual. Allegue et al.[6] suggested a postzygotic somatic mutation. Another explanation is partial chimerism; true chimeras presented by Findlay and Moores[18] had the streaky pattern of nevoid hyperpigmentation.

Histopathologic studies upon our patients commonly revealed increased numbers of melanocytes in elongated epidermal rete ridges, similar to lentigo simplex, without nests of nevomelanocytes or cellular inflammation. Moreover, intraepidermal melanocytic dysplasia was not found. In addition to the lentigo simplex pattern, some authors have used the term, 'jentigo pattern', in which small nests of melanocytes were found at the dermoepidermal junction or in the upper papillary dermis[12, 19]. Based on their findings, they suggested that there is a continuum extending between lentigines and speckled lentiginous nevus.

The differntial diagnosis of PUL includes nevus spilus (speckled lentiginous nevus) and other types of pigmented macules. It differs from the lesions of nevus spilus by the presence of groups of small pigmented macules on normal-appearing skin, coupled with the histological features of lentigo simplex. Additionally, and in contrast to the lesions of nevus spilus, no nevus cells are present. Other lentiginosis such as LEOPARD syndrome, LAMB syndrome, NAME syndrome, centrofacial lentiginosis and Peutz-Jeghers syndrome can be easily distinguished from PUL in terms of the bilateral distribution of lentigines, autosomal dominant inheritance, and associated multiple developmental abnormalities[13].

Reviewing previously reported cases, we noted that some patients with PUL also have cafe-au-lait macules and/or axillary freckles[12, 13]. Moreover, some patients have been associated with segmental neurofibromatosis[4-6]. These observations suggest that PUL is a variant or forme fruste of segmental neurofibromatosis[1, 7]. Segmental neurofibromatosis is characterized by cafe-au-lait macules or neurofibromata with a unilateral, segmental distribution[20]. In our series 6 patients had 1 to 3 cafe-au-lait macules and axillary freckles were also observed in two cases. However, these patients do not seem to fit into the diagnostic category of segmental neurofibromatosis, because their cutaneous lesions were mainly lentigines with a few small cafe-au-lait macules. Furthermore, 2 patients with axillary freckles had no other stigmata of neurofibromatosis type I such as neurofibromas or Lisch nodules. On this point, we agree with the opinion of Trattner and Metzker[13] that PUL is best considered to be a separate entity, which differs from segmental neurofibromatosis. Further investigations are necessary to assess the clinical criteria to accurately distinguish between the two diseases.

In conclusion, our data confirms that PUL is an idiopathic benign pigmentary disorder, which is usually not associated with other abnormalities. We believe that PUL may not be as unusual in Korean people as previously believed, but that this will only be proven when clinicians pay more attention to this condition by carefully documenting patient history, physical examination, and skin biopsy.

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