

# Localized Idiopathic Lipoatrophy Showing Involutional Histopathology

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We present cases of localized idiopathic lipoatrophy occurring in two women. A 19-year-old girl had symmetrically distributed annular telangiectatic atrophy on both buttocks and a 44-year-old female had annular telangiectatic atrophy on the right buttock. The histopathologic findings of these lesions revealed numerous capillaries, various sized lobules with small round or spindle shaped cells on a background of hyaline material in subcutaneous layer. Two cases of lipoatrophy which shows the involutional phase are reported.

(*Ann Dermatol* 6:(2) 200-203, 1994)

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*Key Words:* Idiopathic localized lipoatrophy, Involutional phase

The lipoatrophies are rare conditions in which there is a atrophy of the subcutaneous fat. There is no unanimity on whether the various forms are distinct entities or more closely related conditions<sup>1</sup>. Localized atrophy may be seen in insulin-dependent diabetics, following certain inflammatory conditions such as panniculitis and morphea or as primary idiopathic lipoatrophy<sup>2</sup>. Localized idiopathic lipoatrophy have two histologic subsets-involutional and inflammatory<sup>3</sup>. We observed two patients with localized idiopathic lipoatrophy on the buttocks which showed involutional histopathologic features.

## REPORT OF CASES

**Case 1.** A 19-year-old girl visited Young Dong Severance Hospital for the evaluation of symmetrically depressed lesions on both buttocks in December 1992. She discovered the lesion 1 week ago. She denied injection or trauma history on

these regions. Family history was non-contributory

On physical examination, symmetrically localized 1cm x 1cm sized erythematous annular atrophies with telangiectatic surface were observed on both buttocks(Fig. 1). The remainder of the physical examination showed normal findings.

Laboratory tests included normal findings from CBC, ESR, and liver function test. Urinalysis, chest PA, ANA and rheumatoid factor were negative.

Histologic examination of an excisional biopsy specimen from the involved skin on the right buttock showed normal epidermis, mild thickening of collagen bundles in the dermis, and numerous capillaries, various sized lobules with small sized round or spindle shaped cells on a background of hyaline material in the subcutaneous layers(Fig 3a,b). S-100 stain was performed on these round or spindle shaped cells to differentiate fibroblasts from lipocytes. These cells stained heavily with S-100(Fig. 4) and many capillaries stained well with factor VIII antigen. Alcian blue stain was performed to confirm hyalin material in the subcutaneous layers(Fig. 5). The remaining region on the left was excised. She remained free of disease for 6 months.

**Case 2.** A 44-year-old woman visited our hospital

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Received July 12, 1993.

Accepted for publication January 17, 1994.

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Fig. 1. Symmetrically located 1cm x 1cm sized erythematous annular atrophies with telangiectatic surface on both buttocks.

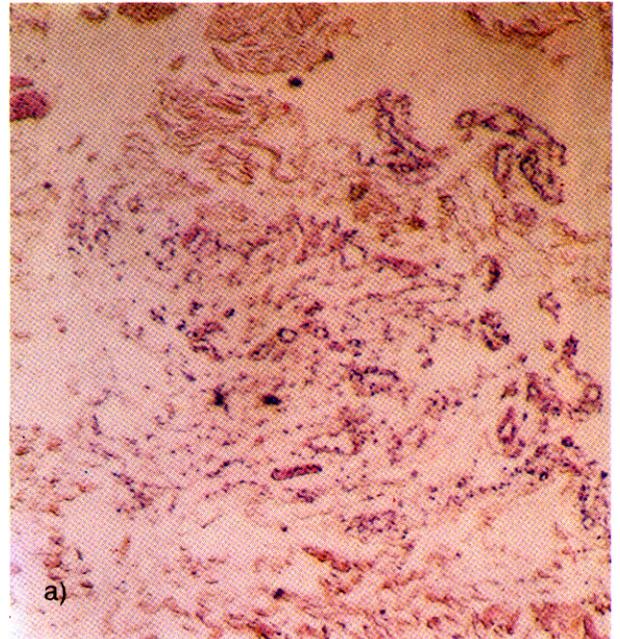


Fig. 3a) Decreased adipose tissue, numerous capillaries, various sized lobules in the subcutaneous layer(H & E stain, x 40).

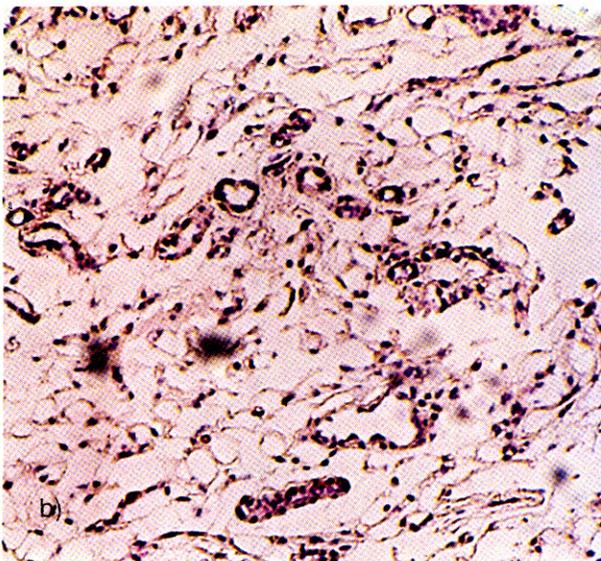
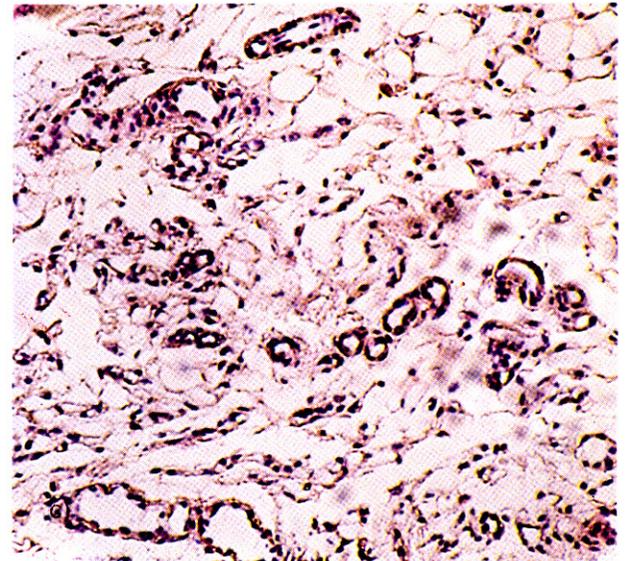


Fig. 3b) 3c). Numerous capillaries were embedded in a myxoid stroma and lined by single cuboidal to columnar endothelial cells and small round or spindle shaped involutinal lipocytes(arrow) in the subcutaneous layer(H & E stain, x 200).



for evaluation of a depressed lesion on the right buttock in March 1993. She discovered the lesion 8 months ago and the lesion enlarged gradually. She also denied injection and trauma on this region. Physical examination revealed the 5 x 5 cm sized pinkish slightly fine telangiectatic atrophic patch on

the right buttock(Fig. 2). Laboratory tests included normal findings from CBC, ESR, and liver function test. Urinalysis, Chest PA, ANA and rheumatoid factor were negative. Histologic examination of an incisional biopsy revealed normal epidermis and numerous capillaries, various sized lobules



Fig. 2. 5 × 5 cm sized pinkish slight telangiectatic atrophic patch on the right buttock.

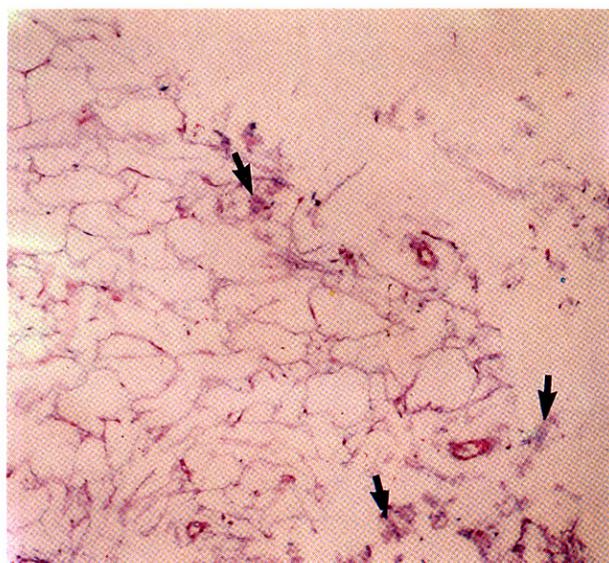


Fig. 5. Alcian blue stain (× 200). Blue stained hyaline material (arrow) was noted on the subcutaneous layers.

with spindle shaped cells on a background of hyaline material in the subcutaneous layers (Fig. 3c).

## DISCUSSION

Localized lipoatrophy consists of one or several well demarcated lesions<sup>4</sup> and includes lipoatrophia annularis<sup>5</sup> and its variants annular atrophy of the ankles<sup>6</sup>, lipoatrophia semicircularis<sup>7</sup>, lipoatrophia centrifugalis abdominalis infantilis<sup>8</sup> and atrophic connective tissue disease panniculitis<sup>9</sup>. Lipoatro-

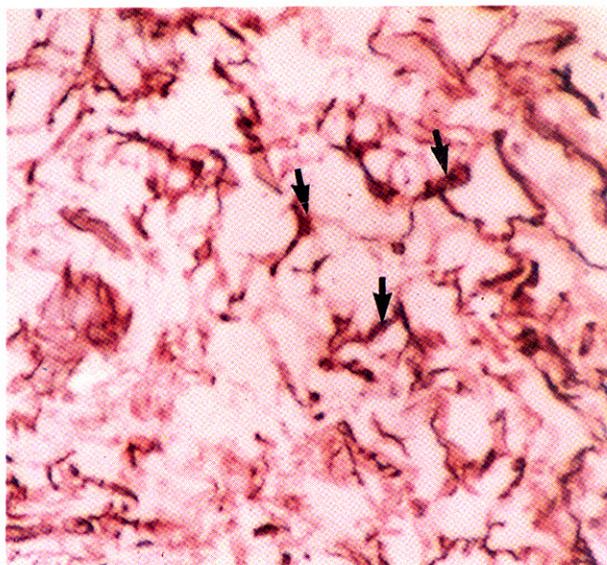


Fig. 4. S-100 positive cells are seen (arrow). Small to medium sized spindle shaped cells show heavily positive in S-100 immunohistochemical stain (× 400).

phy may also occur as a insulin lipoatrophy, lupus profundus and factitial panniculitis.

Localized idiopathic lipoatrophy may be a variants of the same process<sup>2</sup> and predominantly affects thigh. Traditionally the histopathology of localized lipoatrophy has been considered to show only diminished or absent adipose tissue<sup>10</sup>. The two cases described here showed the distinct clinical manifestations which were present on the buttocks and distinct histopathologic findings.

Peters and Inkelmann<sup>3</sup> studied 11 patients of lipoatrophy and found two histopathological subsets. Six patients can be termed 'involutional' fat, consisting of lobules of small lipocytes embedded in the hyaline connective tissue with numerous capillaries. Five patients can be termed 'inflammatory' where the lipocytes are normal and there is a sparse infiltrate of lymphocytes, histiocytes and plasma cells. Previous reports have noted various degrees of inflammatory changes in localized lipoatrophy<sup>9,11-12</sup>.

The possibility that the two patterns represent different phases of the same pathological process can not be ruled out but there are no cases of inflammatory lipoatrophy which has subsequently or coincidentally shown the involutional pattern including our cases. The biopsy specimen from our case showing spindle shaped cells which were positive in

S-100 immunohistochemical stain, appeared to be lipocytes and numerous capillaries and myxoid stroma. The microscopic feature in our cases showing involutional lipoatrophy is a distinctive histologic pattern. Peters and Winkelmann<sup>3</sup> stated that an involutional histologic picture could be correlated with an absence of underlying or associated disease. Our patients had no evidence of underlying disease.

We suggest that lipoatrophy which shows an involutional histologic picture is one of disease pattern.

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