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### **Acral lentiginous melanoma: report of three cases**

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### **Abstract**

Acral lentiginous melanoma (ALM) is a clinicopathologic variant of malignant melanoma of the skin. It occurs in the acral or peripheral parts of the limb, on the plantar or palmar surfaces of the hands and feet, or the subungual areas of the fingers or toes. ALM is histologically and clinically distinct from other types of melanoma like nodular melanoma (NM), superficial spreading melanoma (SSM), and Lentigo maligna melanoma (LMM). We report 3 cases of acral lentiginous melanoma 2 of which showed good prognosis after surgical excision.

### **Introduction**

Acral lentiginous melanoma accounts for about 2%to3% of all melanomas. Overall incidence of melanoma is less in dark skinned individuals but ALM has higher incidence in dark races than other types of melanoma. It is associated with a worse prognosis than cutaneous malignant melanoma overall. Hispanic whites and Asian Pacific Islanders have worse survival rates than other groups. Factors such as increased tumor thickness and more advanced stage at presentation are the most likely explanations. As this tumor involves functional parts, the surgical margins are be compromised which may be responsible for the recurrences. Hence early diagnosis and surgical excision is the key in the management.

### **Cases report**

Three males of which two aged 65 years and one aged 46 years presented with complaints of asymptomatic black colored lesion on the soles in the first two cases and on the right great toe

in the third case, since 3 months, 9 yrs and 2 yrs respectively. There was history of trauma to the sole with glass particle in the first case while the other two cases did not give history of any trauma prior to the appearance of the lesion. All of them did not take any treatment in the past. There was no history of irradiation to the local part or history of chronic arsenic ingestion.

Cutaneous examination in the first case revealed hyperpigmented plaque of 3 X 2 cm. with nodular surface, satellite lesions and surrounding freckles (**Fig 1**). Single firm, mobile, tender left inguinal lymph node measuring 1.5 X 1.5 cm was present.



**Fig 1:** Multiple black nodular lesions associated with patch with uneven pigmentation & irregular border Multiple hyperpigmented freckles

Second case revealed single, 4x2 cm, linear, hyperpigmented, plaque with raised edge, irregular surface, overlying erosions and crusting (**Fig 2**).



**Fig 2:** Single, 4x2 cm, linear, hyperpigmented, plaque with irregular surface, erosions and crusting with raised edge

Examination of third case revealed single hyperpigmented plaque 4x2 cm on periungual and subungual area with partial destruction of nail plate and positive Hutchison's sign (**Fig 3**). Surprisingly lymph node involvement was absent in both second and third case in spite of longer duration of tumor.

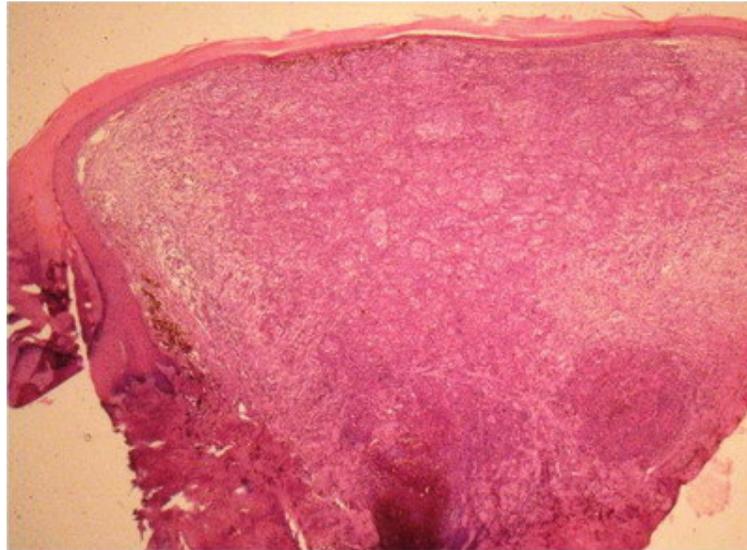


**Fig 3:** Lesion localized to right big toe in the form of black colored plaque over periungual and subungual area with partial destruction of the nail plate

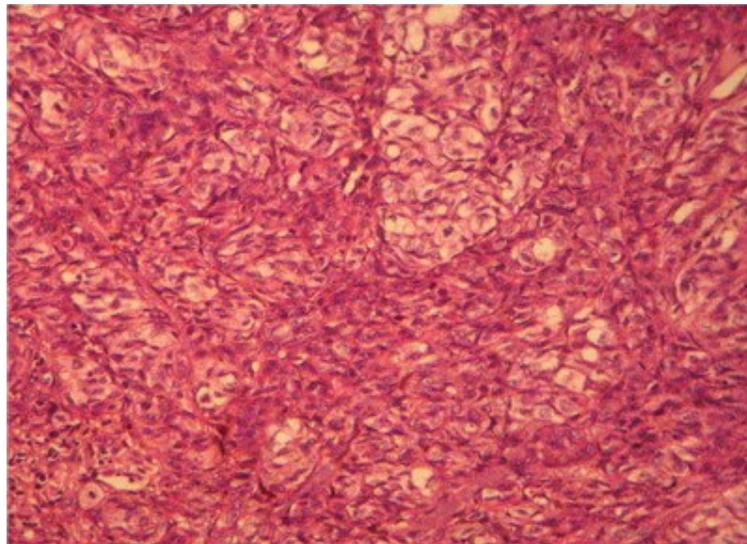
Laboratory and biochemical investigations of all the three patients did not reveal any abnormality. Radiological investigations failed to reveal metastasis to any organ in the body.

X- Ray of local parts did not show involvement of underlying bone.

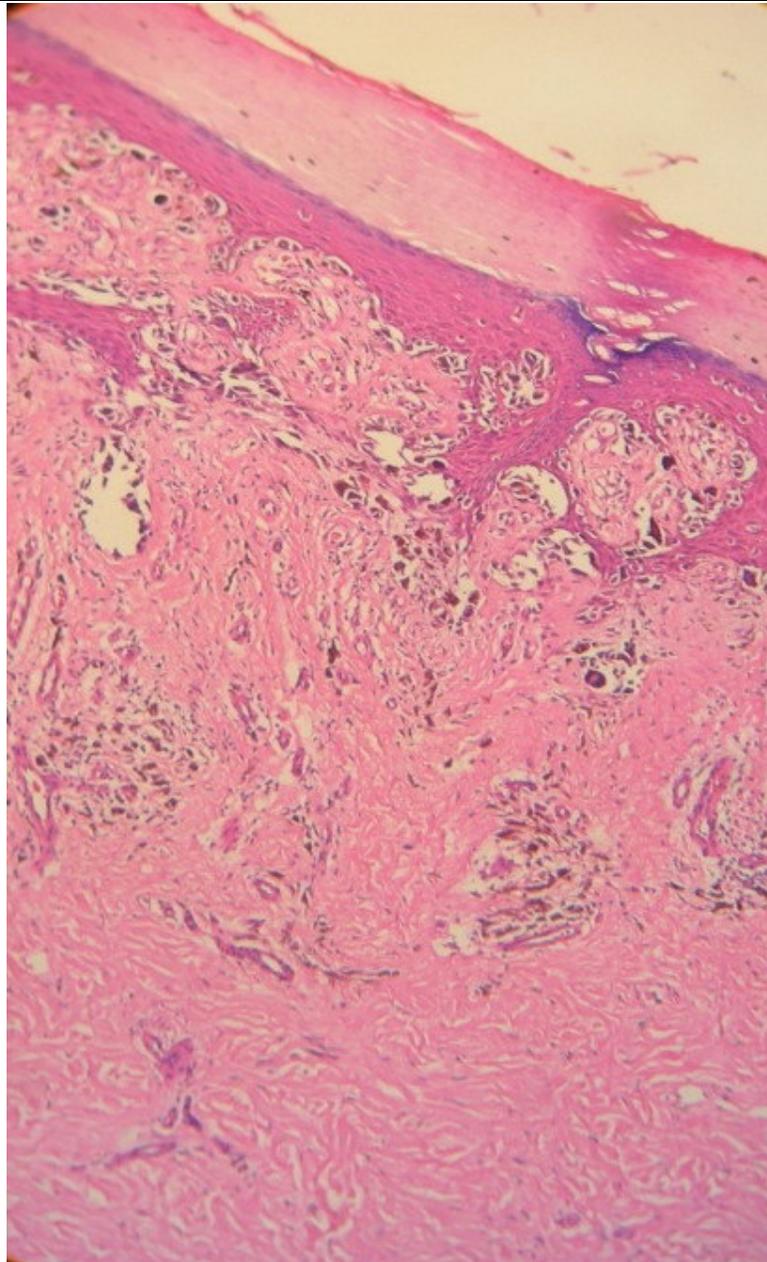
Skin biopsy from the hyperpigmented nodule and plaques confirmed the diagnosis of acral lentiginous melanoma. First case revealed compact hyperkeratosis with diffuse infiltration of dermis with atypical rounded and spindle shaped cells with focal pigmentary incontinence (**Fig 4 & 5**) while second case and third cases revealed lateral spread of atypical melanocytes (**Fig 6 & 7**). Staging of melanoma is mentioned in (**Table 1**).



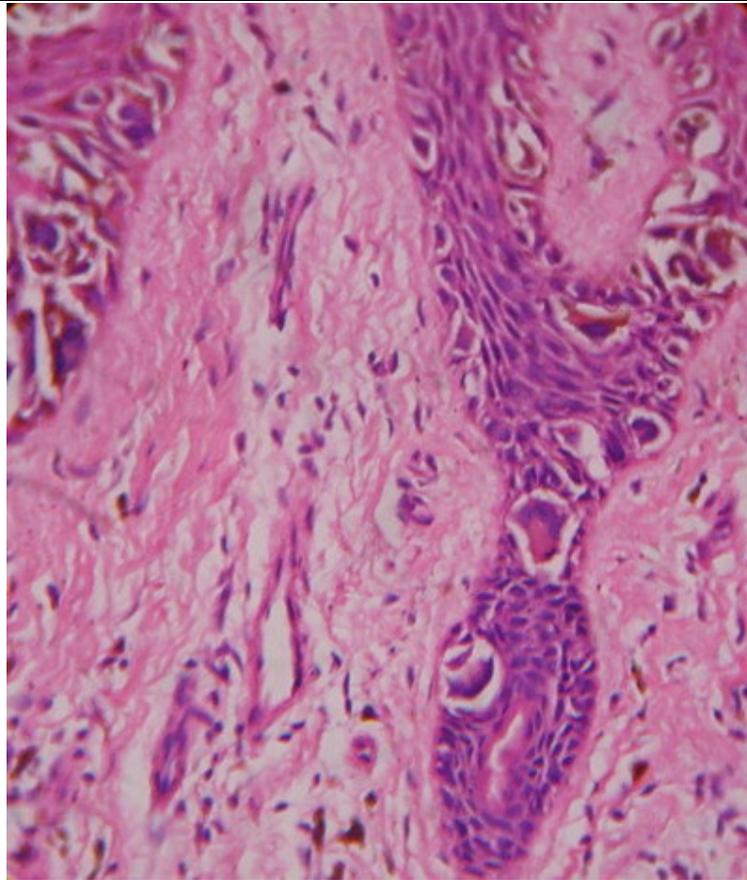
**Fig 4:** 100X, H & E: Case 1  
Well Compact hyperkeratosis with diffuse infiltration of dermis with atypical cells with focal melanin deposition.



**Fig 5:** 400 X, H & E:  
Case 1: Spindle shaped & rounded tumor cells seen with uniform cytological atypia



**Fig 6:** 100X, H& E:  
Case 2: Lateral spread of atypical melanocytes along the basal layers and in the dermis



**Fig 7:** 400 X, H & E:  
Case 2: Lateral spread of atypical melanocytes at the basal layer.

	Case 1	Case2	Case3
Tumor thickness	3 mm	1 mm	9 mm
Overlying ulceration	Absent	Present	Absent
Lymph node metastasis	Present	Absent	Absent
Distant metastasis	Absent	Absent	Absent
AJCC staging	T3aN2cM0 Stage III	T1bN0M0 Stage IB	T4aN0M0 Stage IIB
Clark's level	IV	II	IV

**Table 1:** Staging of melanoma

First patient underwent surgical excision with 1 cm margin and inguinal lymph node block dissection (**Fig 8, 9, & 10**) while the third patient underwent right great toe wide excision with interphalangeal joint disarticulation and reconstruction with posterior flap (**Fig 11**). Unfortunately second patient lost to follow up.



**Fig 8:** Case 1: Surgical excision with 1 cm margin



**Fig 9:** Case 1: Excised tumor with 1 cm margin



**Fig 10:** Case 1: Inguinal Lymph node dissection



Pre Operative



Post Operative

**Fig 11:** Case 3: right great toe wide excision with interphalangeal joint disarticulation and reconstruction with posterior flap

## Discussion

In 1976, Reed [1] first described ALM as pigmented lesions on the extremities, particularly on plantar regions, like the palms of the hands and soles of the feet, which are characterized by a lentiginous (radial) growth phase evolving over months or years to a dermal (vertical) invasive stage. It accounts for about 2 to 3 % of all melanomas [2,3]. The overall incidence of cutaneous malignant melanoma (CMM) in darker skinned individuals is low compared with whites; however, ALM makes up a much higher proportion of CMM in darker skinned individuals (i.e. blacks, Asians, and Hispanics).

Arrington et al [4] were the first to note that this type of melanoma was the most common expression of melanoma in blacks and those patients with ALM had a very poor prognosis. In Reed's study, patients with ALM had a mean 3-year survival rate of 11%. The poor survival rate of these patients may have been due in part to delays in diagnosis [1].

Bradford [5] et al conducted a survey through population based registry over a period of 20 years and found distinct features of ALM compared to CMM. In their study overall incidence of ALM was very low compared to other types of CMM i.e. 1.8 per 1000000 person-years without any sex predilection. The proportion of ALM among all melanoma subtypes was greatest in people of dark races. The mean age at diagnosis for ALM was 62.8 years, compared with 58.5 years for CMM overall. In their study lower extremity was most commonly involved than upper extremity for ALM while for CMM trunk was the most common site followed by upper and lower extremities. Comparing the tumor thickness overall, CMMs were thinner than ALMs, with 70.0% of CMMs diagnosed at 0.01 to 1.00 mm. In contrast, for ALMs, only 41.3% were diagnosed at 0.01 to 1.00 mm, and 37.0% were diagnosed at thicker than 2.00mm. Tumor thickness was greater (2 mm) in men than Women with ALM. Approximately 37.8% of ALMs were stage I, in contrast to 67.5% of CMMs. Darker races showed 50 % of patients in the stage III than the white races. Overall, patients with ALM had lower 5 and 10-year melanoma- specific survival than for CMM. For ALM 10-year survival rates at 0.01 to 1.00 mm and 2.01 to 4.00mm were significantly lower than respective CMM 10-year survival rates.

Clinical management of melanoma begins with an accurate diagnosis. A suspicious lesion should be biopsied as the early diagnosis and management also improves prognosis. A 1-3 mm margin of normal skin is taken if the wound can be closed primarily. Wider margins should be avoided to permit accurate subsequent lymphatic mapping. If removal of the entire lesion creates too large a defect, then punch biopsy or excision of a representative segment of the lesion is recommended. Once a diagnosis of melanoma is made, the biopsy scar and any remains of the lesion need to be removed to eradicate any remaining tumor. [6]

Histopathology of the ALM shows hyperkeratosis, marked acanthosis and a proliferation of atypical melanocytes along the bases and sides of rete ridges in a lentiginous pattern. The large atypical melanocytes show large irregular nuclei, prominent nucleoli and the cytoplasm is filled with melanin granules. In invasive tumors, the melanocytes in dermis are spindle shaped and associated with sclerotic stroma. Nests of atypical melanocytes can be seen at the junction or individual melanocytes can be seen above basal layer up to stratum corneum.

The size of the surgical margins depends on the tumor thickness. For in situ lesions a 0.5- to 1 cm margin of normal skin is adequate for cure. Thin melanomas ( $\leq 1$  mm) require a 1 cm margin to prevent local recurrence; lesions between 1.01 and 2 mm should have a margin of 1-2 cm. For lesions between 2.01 and 4 mm, a 2 cm margin is recommended. Extending the resection beyond 2 cm does not appear to decrease local recurrence rates. Melanoma of fingers and toes requires digital amputation. [7,8]

The surrounding tissue should be removed down to the superficial fascia to remove all lymphatic channels. If the deep fascia is not involved by the tumor, removing it does not affect recurrence or survival rates. Generally, the wounds should be closed primarily. Larger tissue defects may be closed with local rotational/advancement skin flaps or a skin graft [9].

Regional lymph nodes metastasis is a poor prognostic sign. All clinically positive lymph nodes should be removed by regional nodal dissection unless unrespectable distant metastases are present. Therapeutic lymph node dissection includes a superficial inguinal lymphadenectomy. The deep (iliac and obturator) nodes should be removed in the presence of clinical or radiographic evidence of deep node involvement or if there are more than three positive superficial nodes or when Cloquet's node is positive [10,11,12,13].

## References

1. Reed RJ, New Concepts in Surgical Pathology of the Skin, New York, NY: John Wiley & Sons, 1976:89-90.
2. Surveillance, Epidemiology, and End Results (SEER) Program: SEER\*Stat Database. National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, Web site. [www.seer.cancer.gov](http://www.seer.cancer.gov). Accessed: July 2008.
3. Markovic SN, Erickson LA, Rao RD, et al. Melanoma Study Group of the Mayo Clinic Cancer Center. Malignant melanoma in the 21st Century, part 1: epidemiology, risk factors, screening, prevention, and diagnosis, Mayo Clin Proc, 2007, 82(3):364-380.
4. Arrington JH III, Reed RJ, Ichinose H, Kremenz ET, Plantar lentiginous melanoma: a distinctive variant of human cutaneous malignant melanoma, Am J Surg Pathol, 1977,1(2):131-143.
5. Bradford PT, Goldstein AM, McMaster ML, Tucker MA, Acral Lentiginous Melanoma Incidence and Survival Patterns in the United States, 1986-2005 Arch Dermatol, 2009, 145(4):427-434.
6. Kosmidis C, Efthimiadis C, Anthimidis G, Grigoriou M, Vasiliadou K, Ioannidou G, Makedou F, Baka S, Acral Lentiginous Melanoma: A Case Control Study and Guidelines Update, Case Report Med, 2011;2011,670581. Epub 2011 Apr 6.
7. National Comprehensive Cancer Network Practice Guidelines in Oncology. <http://www.nccn.org>.
8. Balch CM, Soong S-J, Smith T, et al, Long-term results of a prospective surgical trial comparing 2cm vs. 4cm excision margins for 740 patients with 1-4 mm melanomas. Ann Surg Oncol. 2001 Mar; 8(2):101-8.
9. Hansen S, Mathes S, Young D. Skin and subcutaneous tissue, In: Brunicaardi FC, Andersen DK, Billiar TR, Dunn DL, Hunter JG, Pollock RE, editors. Schwartz's Principles of Surgery, 8th edition, New York, NY, USA: McGraw-Hill; 2005, pp. 1297-1315.
10. Coit DG, Extent of groin dissection for melanoma, Surgical Clinics of North America, 1992, 1:271-280.
11. Coit DG, Brennan MF, Extent of lymph node dissection in melanoma of the trunk or lower extremity, Arch Surg. 1989;124(2):162-166.
12. Shen P, Conforti AM, Essner R, Cochran AJ, Turner RR, Morton DL. Is the node of Cloquet the sentinel node for the iliac/obturator node group? Cancer J. 2000 Mar-Apr; 6(2):93-7.
13. Hughes TMD, A'Hern RP, Thomas JM, Prognosis and surgical management of patients with palpable inguinal lymph node metastases from melanoma. Br J Surg. 2000 Jul;87(7):892-901

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