

# Clinicopathologic Profile of Becker's Melanosis With Atypical Features

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## ABSTRACT

Becker's melanosis (BM) is an uncommon cutaneous hamartoma. The classical description of the lesion is of a macular, pigmented patch found on the upper trunk, with onset at or around adolescence.

The aim of this study is to describe the clinicopathologic features of cases of BM which do not fit this typical description.

Biopsy registry and laser clinic records from 2000–2006 at the authors' institution were searched for cases with a diagnosis or differential diagnosis of BM. A chart review was then undertaken to record clinical data and histological features of each case. Eleven cases which fit criteria for inclusion in the study were identified.

The authors found that these eleven cases could all be described as BM with atypical features but were still clearly within the spectrum of this condition.

Contrary to widely held belief, cases of Becker's melanosis with atypical features are not uncommon and might be under-reported.

## INTRODUCTION

In 1949, Becker described two cases of a unilateral hyperpigmented hairy skin lesion.<sup>1</sup> Since then, Becker's melanosis (BM) has been recognized as an acquired, asymmetrical pigmented skin lesion which may show evidence of increased androgen sensitivity.<sup>2</sup> A typical case is acquired during the second decade and is situated on the upper trunk and proximal extremities. The lesion is more common in males.<sup>3</sup> Therefore, any case not fulfilling the typical above-mentioned description is considered a case with atypical features.

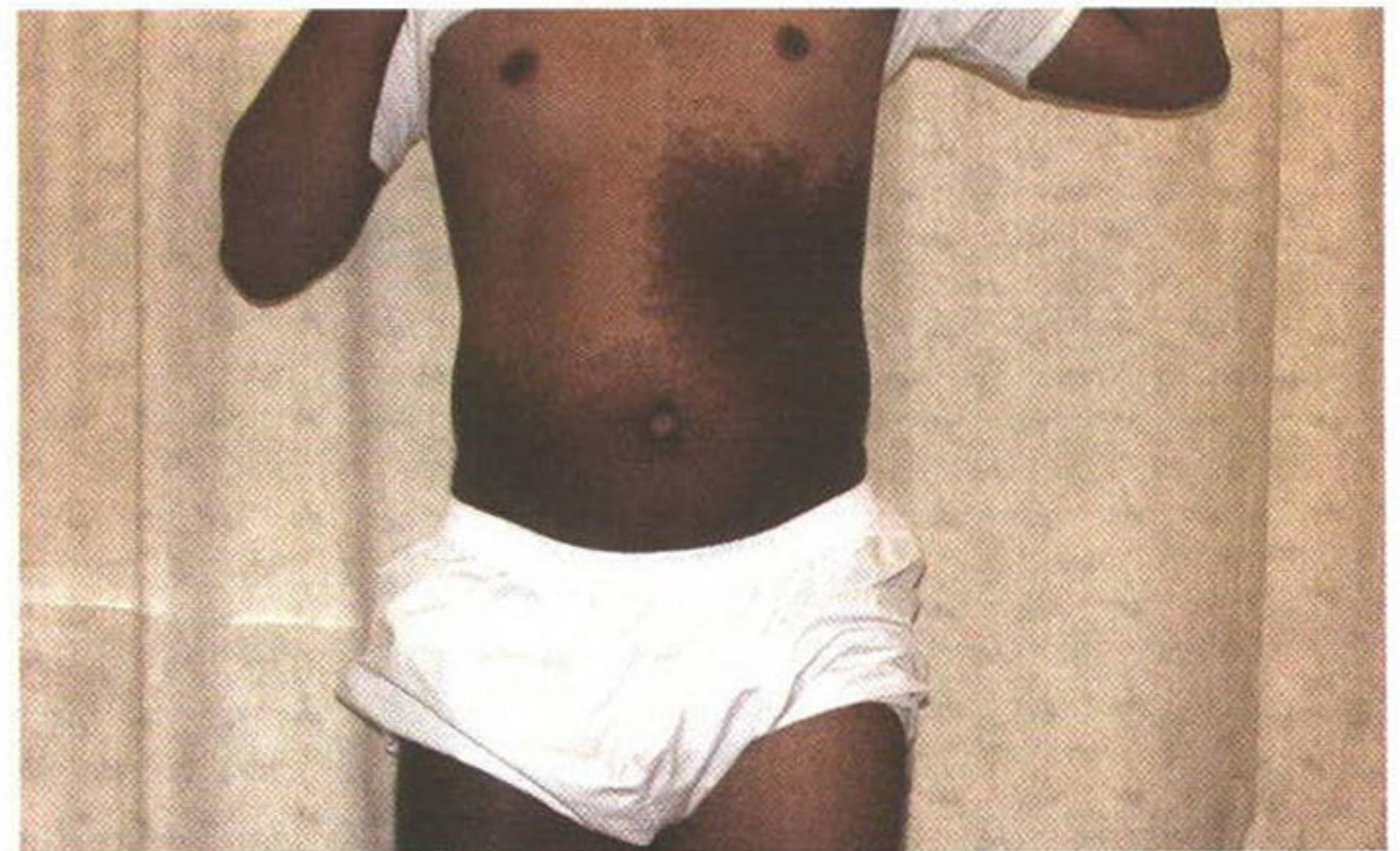
Histologically, Becker's melanosis is characterized by epidermal acanthosis and sometimes mild papillomatosis with variable hyperpigmentation of the basal layer and some dermal melanophages.<sup>4</sup> Mild melanocyte proliferation is usually present, though not always obvious.<sup>4</sup> There is sometimes an increase in the number and size of hair follicles and sebaceous glands in addition to smooth muscle hypertrophy.<sup>4</sup>

## METHODS

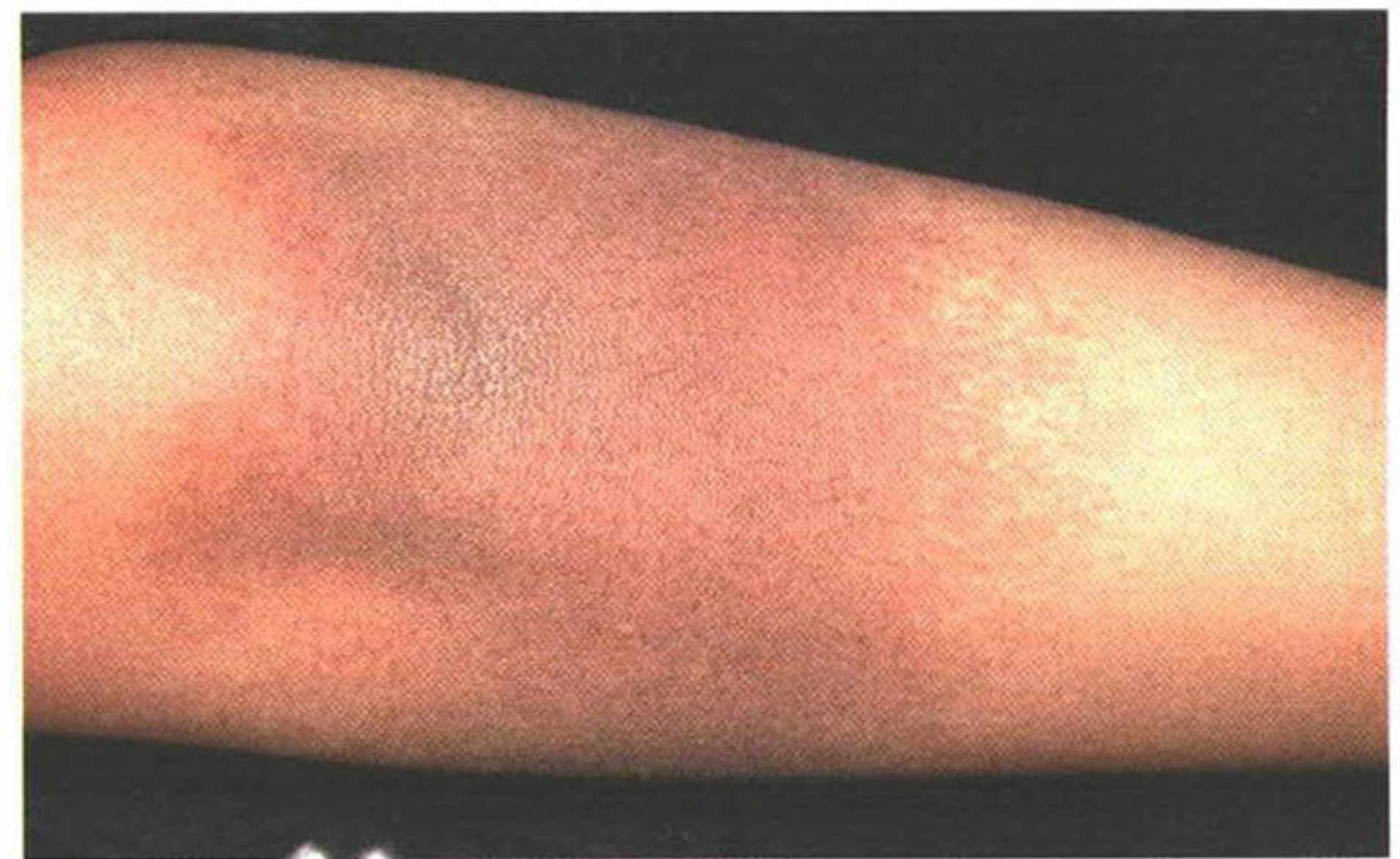
Records from the years 2000–2006 of the biopsy registry and laser clinic of the Dermatology Department, King Khalid University Hospital, Riyadh, Saudi Arabia were searched for cases where BM was the diagnosis or differential diagnosis.

The inclusion criteria for the study was a histologically confirmed lesion which was not situated on the trunk or proximal extremity and/or where the onset was not at or around adolescence.

A chart review of these records was undertaken and a total of 11 histologically confirmed cases of BM which did not conform to the classic clinical description were identified.



**FIGURE 1A.** A giant Becker's melanosis involving the whole abdomen except the right upper quadrant, with extension to the right thigh down to the knee (Patient No. 5).



**FIGURE 1B.** Becker's melanosis on the left elbow measuring 15 x 10 cm (Patient No. 10).

These 11 cases were reviewed for full clinical details and histopathology was reviewed by a dermatopathologist.

## RESULTS

Of the 11 identified cases, there were five males and six females. Age of onset ranged from birth to 35 years. The location of the lesion in seven patients was entirely outside the trunk and, in one case, was bilateral (Figures 1A and 1B). The color was uniform, ranging from light brown to dark brown. Borders were irregular. All male and one female patient had associated hypertrichosis. There were no acneform lesions, associated breast or musculoskeletal defects in any patient. The clinical features are summarized in Table 1.

Histologically all cases demonstrated acanthosis and increased melanocyte numbers. Ten patients manifested elongation of the rete ridges and basal pigmentation, while seven had melanophages (Figures 2A and 2B). Two patients showed sebaceous gland hyperplasia. Only one patient exhibited smooth muscle hyperplasia. The detailed histological features of our patients are shown in Table 2.

## DISCUSSION

BM is an uncommon cutaneous hamartoma with a classical description. Herein, 11 histologically confirmed cases with features that do not fit the classic description are reported.

The authors recorded an age range for onset of the lesion from birth to age 35. Becker's melanosis usually presents in adolescence, however, late onset<sup>5</sup> and congenital<sup>6-8</sup> Becker's melanosis and congenital smooth muscle hamartoma (CSMH) have been regarded by some authors as variants of the same hamartomatous process since they are clinically and histologically similar.<sup>9,10</sup> While Becker's melanosis has more epidermal changes, dermal smooth muscle hyperplasia is more prominent in CSMH.<sup>11</sup> In 1923, hyperplasia of dermal smooth muscles was first described in what was later named "Becker's melanosis."<sup>12</sup> Afterwards,<sup>13</sup> smooth muscle hyperplasia was found in an entire group of Becker's melanoses. Only one of our patients (No. 5) had a prominent increase in dermal smooth muscles, while the rest of the patients had no dermal smooth muscle changes. Becker's melanosis without smooth muscle hyperplasia has been previously reported.<sup>14,15</sup>

Becker's melanosis has been reported to be much more common in males than in females with a male-to-female ratio ranging from 4:1<sup>16</sup> to 6:1.<sup>3</sup> Because of its androgen dependency, Becker's melanosis tends to be less conspicuous in females, thus, it is probably underreported.<sup>16,17</sup> In these patients, it is interesting to note that atypical sites were more common among females. Out of seven cases in which the lesions were not seen on the trunk, six of them (85%) were females.

Classic locations for Becker's melanosis are the upper trunk and proximal upper extremities.<sup>3</sup> Unusual locations, however have been reported such as the face, neck, lower trunk, pubic area, forearms and lower limbs.<sup>11,14,16</sup> All of these patients had unusual locations. The authors postulate that the occurrence at such atypical locations is not uncommon.

In a survey of 19,302 male French military recruits,<sup>5</sup> hypertrichosis was present in a little more than half of Becker's nevi. In the authors' patients, only one female had hypertrichosis, while all male patients had some degree of it. This is, again, explained by androgen dependency of Becker's melanosis.



**FIGURE 2A.** Histopathological examination of Patient No. 5 showing acanthosis, elongation and clubbing of rete ridges, and basal cell pigmentation (hematoxylin and eosin, original magnification x10).



**FIGURE 2B.** Histopathological examination of Patient No. 11 showing acanthosis, elongation and clubbing of rete ridges, and basal cell pigmentation (hematoxylin and eosin, original magnification x20).

Moreover, acneform eruption was not documented in any of our patients.

In 1995, the term "pigmented hairy epidermal nevus syndrome" was proposed for patients having Becker's melanosis associated with breast, cutaneous, muscular or skeletal defects.<sup>18</sup> The new designation "Becker's nevus syndrome" was proposed two years later.<sup>16</sup> None of our patients had associated defects.

## CONCLUSION

Becker's melanosis is an uncommon cutaneous hamartoma, usually presenting in males at peripupertal age over the upper trunk. However, it is possible to have it at any age and over any location. The reported male predominance may be exaggerated. Classic Becker's melanosis is not a difficult clinical diagnosis; however, higher index of suspicion is required in cases of acquired hyperpigmented patches in unusual sites. A

TABLE 1.

Clinical Features of Eleven Cases of Atypical Becker's Melanosis With Histological Confirmation									
No.	Gender	Age of Onset	Location	Size	Color	Hypertrichosis	Acneform Lesions	Associated Defects	Atypical Feature
1	F	Birth	L buttock, thigh	20 x 20 cm	Brown	-	-	-	Age of onset, Site
2	F	1 year	Dorsum of R foot	10 x 15 cm	Dark brown	-	-	-	Age of onset, Site
3	M	5 years	Chin extending to neck	NM	Brown	+	-	-	Age of onset, Site
4	F	10 years	R knee	15 x 15 cm	Brown	-	-	-	Site
5	M	3 months	Trunk and proximal right thigh	Giant: 90 x 45 cm See fig (1)	Dark brown	+	-	-	Age of onset, bilateral, Site, Size
6	M	NM	Upper back extending to both arms	NM	Dark brown	+	-	-	Bilateral
7	F	NM	Lower R thigh	5 x 7 cm	Dark brown	+	-	-	Site, hypertrichosis (in a female)
8	F	NM	L forearm	NM	Brown	-	-	-	Site
9	M	13 years	Lower trunk	NM	Dark brown	+	-	-	Site
10	F	3 years	L elbow	15 x 10 cm	Light brown	-	-	-	Age of onset, Site
11	M	10 years	Lower back	14 x 17 cm	Dark brown	+	-	-	Site

Key: (NM) not mentioned, (+) present, (-) absent, (L) left, (R) right.

TABLE 2.

Histological Findings Of Eleven Cases Of Becker's Melanosis With Atypical Clinical Features											
No.	Acanthosis	Elongation of Rete Ridges	Clubbing	Basal Pigmentation	Increased Melanocytes	Melanophages	Smooth Muscle Hyperplasia	Nevus Cells	Hair Follicle Hyperplasia	Sebaceous Gland Hyperplasia	Dermal Thickening
1	+	+	+	+	+	-	-	-	-	-	-
2	+	+	+	+	+	-	-	-	-	-	-
3	+	-	-	+	+	+	-	-	-	-	-
4	+	+	-	+	+	+	-	-	-	-	-
5	+	+	+	+	+	+	+	-	-	-	-
6	+	+	+	+	+	-	-	-	-	-	-
7	+	-	+	+	+	+	-	-	-	-	-
8	+	+	+	-	+	-	-	-	-	-	-
9	+	+	+	+	+	+	-	-	-	+	-
10	+	+	+	+	+	-	-	-	-	-	-
11	+	+	+	-	+	+	-	-	-	+	-

Key: (+)Present, (-) absent

histological examination might be required to confirm the diagnosis in such cases. Contrary to widely held belief, cases of Becker's melanoses with atypical clinical features are not uncommon and are probably underreported.

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#### DISCLOSURES

The authors have no conflicts of interest to report.

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