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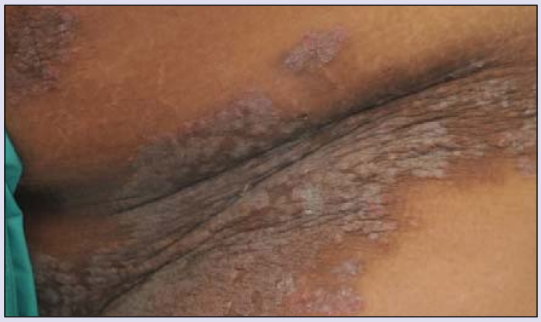

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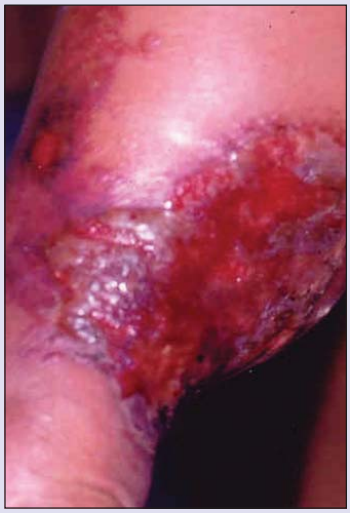

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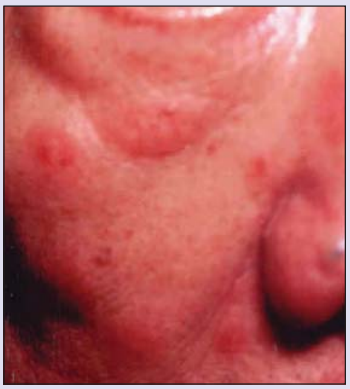

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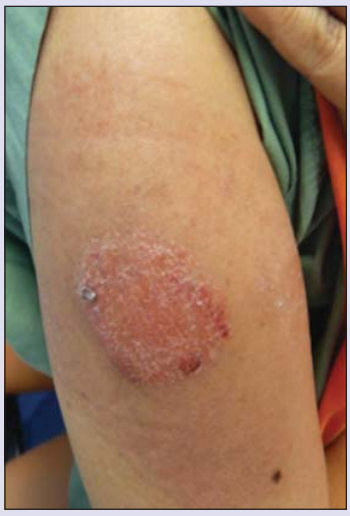

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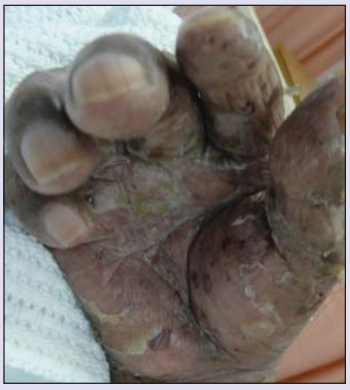

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2-16, 16th Floor, Blk 2(Remis)
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Dr. Rohna Ridzwan
Department of Dermatology
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DERMATOSURGERY - Original Article

Treatment response of port-wine stain to 585-nm pulsed dye laser: a five-year retrospective review

Norashikin S[1], *Adv MDerm (UKM)*, Gangaram HB[2], *FRCP*, Suraiya H Hussein[2] *FRCP*

Abstract

Background The treatment of port-wine stains (PWS) with the pulsed dye laser (PDL) is well established in patients with lighter skin phototypes with few complications. Evidence is emerging that PDL also produces favourable outcome in patients with darker skin types. This review aimed to evaluate the efficacy of flashlamp-pumped PDL for PWS in our centre and to assess the complications of treatment.

Patients and Methods A retrospective review of 36 patients with PWS treated with PDL (585-nm, 450 microseconds pulse width, Candela Sptl-1b) at the Department of Dermatology, Hospital Kuala Lumpur over a five-year period from 2003 to 2007 was undertaken. All patients (28 females, 8 males; 25 Chinese, 10 Malays and 1 Indian) were of Fitzpatrick skin types IV (30/36) and V (6/36) with ages ranged from 1 to 59 years (mean 18.9 years). The site of lesion was mainly facial (34/36) with colour varying from red (24/36) to pink (4/36), dark purple (1/36) and mixed (7/36). Response was graded as 0-25% = nil to minimal lightening; 26-50% = moderate lightening; 51-75% = marked lightening; 76-100% = excellent based on the last treatment visit.

Results The number of sessions ranged from 2 to 16 over 4 to 52 months (mean 5.9 months). The average treatment interval was 4.6 months (range, 1 to 13 months). In a total of 213 sessions, minimal lightening was observed in 19(53%) patients after a mean of 4.2 sessions, moderate lightening in 8(22%) patients after a mean of 8.1 sessions, marked lightening in 3(8%) patients after a mean of 6 sessions and excellent in 6(17%) patients after a mean of 6.8 sessions. No patient showed complete clearance. 1 patient developed both textural change and scarring.

Conclusion The flashlamp-pumped PDL is a useful and safe treatment modality for PWS in Asian patients of darker skin phototypes.

Keywords *port-wine, 585 nm Pulse dye laser*

Introduction

Port-wine stains (PWS) are congenital capillary malformations that afflict 0.3% to 0.5% of newborns with an equal sex distribution[1]. Histologically, it consists of dilated post-capillary venules with increased numbers of normal looking capillaries.

Correspondence
Norashikin Shamsudin, *Adv MDerm*
[1]Department of Medicine
Faculty of Medicine and Health Sciences
University Putra Malaysia, 43400 Serdang
Selangor, MALAYSIA
E-mail : aliffarhan@yahoo.com

[2]Department of Dermatology, Kuala Lumpur Hospital

It is often unilateral with half of the cases occurring on the face. The lesions are flat, pinkish-red to deep purple in colour and tend to darken and thicken with time, often becoming raised and nodular as vessel diameter increases with age[1]. The major consequences of PWS are physical and psychosocial impairment because of gradual hypertrophy and disfigurement, although it can be associated with ocular (glaucoma) and neurological complications (Sturge-Weber syndrome).

The pulsed dye laser (PDL) is undoubtedly the treatment of choice for port-wine stains. It is based on the principle of selective photothermolysis with oxyhaemoglobin as the chromophore. PDL has shown excellent cosmetic results in fair-skinned individuals with low incidence of side-effects[2].

Favourable results on darker skin types of Asian patients have been also been achieved[3,4,5]. At present however, there is no published data on the efficacy and complications of treating PWS with PDL in local patients who are mainly of darker skin types.

The aims of this review were to evaluate the therapeutic response of PWS to the 585-nm flash-lamp pumped PDL in patients treated at the Department of Dermatology, Hospital Kuala Lumpur and to assess the complications of treatment.

Patients and methods

A retrospective review of 36 patients with PWS treated with the 585-nm flash-lamp pumped PDL (450 microseconds pulse width, Candela Sptl-1b) at the Department of Dermatology, HKL from 2003 to 2007 was undertaken. The demographic details, clinical features and laser parameters were reviewed. The therapeutic responses recorded at each session and at 3 to 6 months after the final treatment session (if available) were analyzed. Complications such as hyper and hypopigmentation, textural changes and scarring recorded at every visit were also reviewed.

Out of 36 patients, 2 had previously received PDL laser treatments elsewhere with minimal improvement and no side-effects. The first patient had 8 sessions in 1997 and from 2003 to 2006 and the second patient had unknown number of sessions from 1995 to 1996. Response was graded as 0-25% = nil to minimal lightening; 26-50% = moderate lightening; 51-75% = marked lightening; 76-100% = excellent lightening based on patients' assessment in the last treatment visit.

Results

The demographic profile and skin photo types are shown in Table 1. All patients were of Fitzpatrick skin type IV (30/36) and V (6/36). Majority of patients were female and there were disproportionately more Chinese patients (n=25, 69.4%) as compared to the clinic attendance during the 5 year study period (Malays 53.8%, Chinese 22.6%, Indians 21%, others 2.6%). Table 2 summarizes the clinical features of these patients. The PWS lesions were mainly on the face and neck (30/36), red (24/36) and macular (25/36). 3 patients had associated glaucoma and Sturge-Weber syndrome.

The number of treatment sessions ranged from 2 to 16 over 4 to 52 months (mean, 5.9 treatments) with an average treatment interval of 4.6 months (range, 1 to 13 months). Laser parameters used were spot size, 7mm; fluence, 5 -7.5 J/cm^2; fixed wavelength (585-nm); pulse width (450 microseconds) with10-20% overlapping of spots. Adults tolerated the treatment well with ice pack cooling while 5 out of 16 children were treated under general anaesthesia.

Table 1 Demographic profile and skin photo types

Sex	F:M = 28:8 (3.5:1)	
Age	1-59 years (mean 18.9)	
Race	Malay	10 (27.8%)
	Chinese	25 (69.4%)
	Indian	1 (2.8%)
Skin photo type	IV	30 (83.3%)
	V	6 (16.7%)

Table 2 Clinical features of port-wine stain

Site	face and neck	30
	trunk	5
	extremities	2
Colour	pink	4 (11.1%)
	red	24 (66.7%)
	dark purple	1 (2.8%)
	Mixed (red to light purple)	7 (19.4%)
Morphology	entirely macular	25 (69.4%)
	mostly macular with some papules	5 (13.9%)
	entirely papular	1 (2.8%)
	entirely plaques	3 (8.3%)
	mostly plaques with some nodules	2 (5.6%)
Glaucoma and Sturge-Weber syndrome	3 (8.3%)	

In a total of 213 sessions, minimal lightening was observed in 17(47%) patients after a mean of 4 sessions, moderate lightening in 10(28%) patients after a mean of 8 sessions, marked lightening in 3(8%) patients after a mean of 6 sessions and excellent in 6(17%) patients after a mean of 7 sessions (Table 3). None of these patients showed complete clearance. Figure 1and 2 show 2 patients who achieved excellent response to PDL.

The treatment response was compared with respect to age at intervention, site and morphology of PWS and number of treatment sessions (Table 4.1- 4.4). The only factor that seemed to affect the treatment outcome was the age at intervention (p=0.17, Fischer's exact test). Younger patients (<16 years) with PWS appeared to respond better to PDL compared to older patients. Similarly, majority of adult patients with PWS showed minimal lightening (60% adults versus 31% paediatrics) and more paediatric patients showed moderate lightening (44% versus 15%) compared to their adult counterparts. Otherwise, the sample size was too small to make any meaningful comparisons between other attributes such as anatomical location, morphology, number of treatment sessions and the treatment outcome.

Complications are rare as none of our patients developed hyper- or hypopigmentation and only one developed both scarring and textural change. Minor blistering and crusting were accepted as usual consequences of PDL treatment and not considered as an adverse event.

Figure 1 Pink-coloured PWS over the left face. More than 75% lightening after 5 sessions

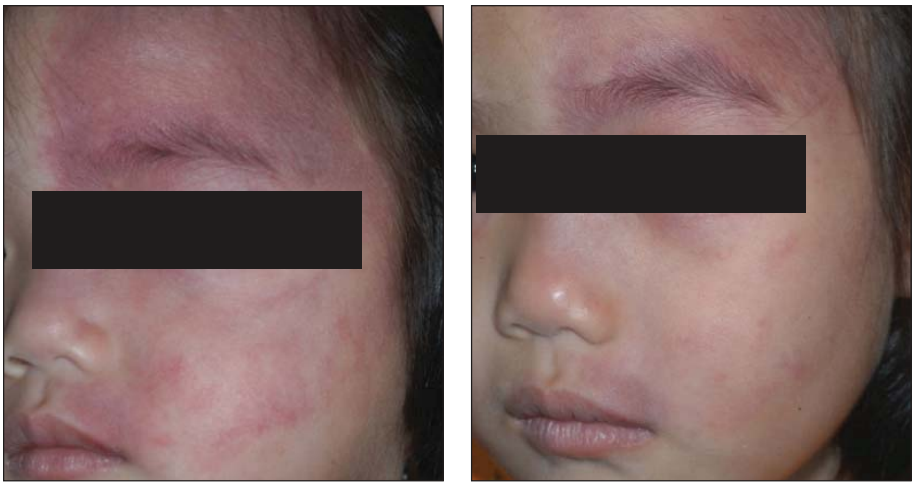

Figure 2 Red-coloured PWS over the left cheek. More than 75% lightening after 3 sessions

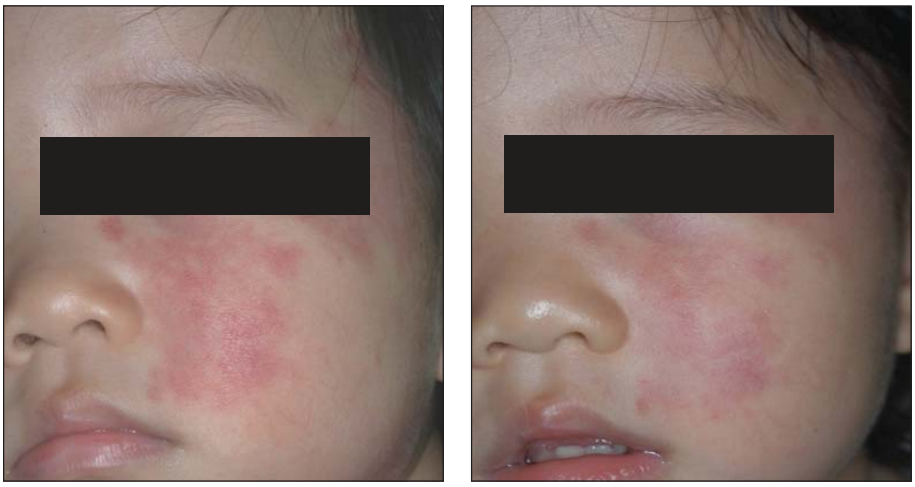

Table 3 Treatment response to pulsed dye laser

Lightening response	No. of patients (%)	No. of sessions (mean)
Nil to minimal (0-25%)	17 (47.2%)	2-12 (4.2)
Moderate (26-50%)	10 (27.8%)	3-14 (8.1)
Marked (51-75%)	3 (8.3%)	3-11 (6)
Excellent (76-100%)	6 (16.7%)	4-10 (6.8)

Table 4.1 Comparison of response with age at intervention

Response	Age at intervention (years)	
	<16 (n= 16)	≥16 (n=20)
0-25%	5 (31.3%)	12 (60%)
26-50%	7 (43.8%)	3 (15%)
51-75%	2 (12.5%)	1 (5%)
76-100%	2 (12.5%)	4 (20%)

Table 4.2 Comparison of response with site of port-wine stain

Response	Site of PWS Face and extremities (n=34)	neck (n=3)	trunk (n=2)
0-25%	15 (44.1%)	3 (100%)	2 (100%)
26-50%	10 (29.4%)	0	0
51-75%	2 (28.8%)	0	0
76-100%	6 (17.6%)	0	0

Table 4.3 Comparison of response with morphology of port-wine stain

Response	Morphology				
	macular n=25	macular with papules n=5	entirely popular n=1	entirely plaques n=3	plaques with nodules n=3
0-25%	9 (36%)	3 (60%)	1 (100%)	3 (100%)	1 (50%)
26-50%	7 (28%)	2 (40%)	0	0	1 (50%)
51-75%	3 (12%)	0	0	0	0
76-100%	6 (24%)	0	0	0	0

Table 4.4 Comparison of response with number of treatment sessions

Response	No. of sessions		
	1-5 (n= 21)	6-10 (n=10)	>10 (n=5)
0-25%	14 (66.7%)	2 (20%)	1 (20%)
26-50%	4 (19%)	3 (30%)	3 (60%)
51-75%	2 (9.5%)	0	1 (20%)
76-100%	1 (4.8%)	5 (50%)	0

Discussion

In our study 53% of the cases showed greater than 25% lightening after a mean of 7 sessions. In comparison with previous studies on Asian patients of dark skin types, PDL appears slightly less effective in this study (Table 5). Majority of our patients achieved minimal response (47.2%) as opposed to the other two studies, in which majority of their patients achieved at least a moderate response. However, the proportion of patients who achieved excellent response was comparable between the three studies. The laser parameters used in all three studies were comparable with respect to the wavelength and pulse width used. In one of the study, the investigators used spot size of 5 to 10 mm to target vessels at varying depth[3].

The use of PDL treating PWS in patients of Fitzpatrick skin types I to III is well established, with one series of fifty-two patients showing >75% improvement in 44% of patients[2,6]. In general, up to 60% of patients can achieve a good reduction in size and a lightening of the colour, whereas complete clearance can only be achieved in about 10% of patients[7]. None of our patients achieved complete removal of their lesions.

The lower efficacy of PDL in dark-skinned individuals is due to the fact that at 585-nm, some absorption by epidermal melanin does occur. Melanin acts as a competing chromophore resulting in less energy reaching the target vessels and causing vascular damage. Higher fluences are therefore required to produce greater absorption by the target vessels. The thermal damage with higher fluence can be prevented by using a cooling device. However, with our pulse dye laser (SPTL-1b), there is no cooling device incorporated, hence we were unable to use too high a fluence to cause the necessary vascular damage. The lower efficacy in this study could also be explained by the long average treatment interval (4.6 months) which was largely due to administrative reasons and patients failing to turn up for their treatment visit and had to be rescheduled. The recommended treatment interval is 6-8 weeks. Most patients also need up to 10 or more treatments for optimal results. We used a fixed wavelength, pulse duration and spot size for all types of PWS irrespective of their colour and thickness. Longer wavelength PDLs with longer pulse widths (595-nm, 1.5-40 ms) are more effective in targeting deeper and larger-calibre vessels which would have been more effective in adults and those with hypertrophic nodular lesions.

Table 5 Comparison with other studies of Asian patients

Ethnic group/skin phototype/study type	Fluence (J/cm²)/spot size (mm)	Lightening response (% of patients)			Complication rates
		<25%	26-75%	>75%	
Indian /IV and V[4] n=27 Prospective	5-7.5/7	22.2	59.2	18.5	29.6% -pigmentary changes only
Asian or Libyan/V[3] n=13 Retrospective	6-7.25/5 5.5 -7/7 4.5-4.75/10	15.4	61.5	15.4	53.7% - pigmentary changes 15% - atrophic scarring
HKL /IV and V* n=36 Retrospective	5-7.5 /7	47.2	36.1	16.7	2.8%- textural change 2.8%- scarring

The results of PDL treatment in general depend on the patient's age, the localization of the lesion and the colour of the PWS[7,12]. This study shows that the patient's age has a significant effect on the treatment response which is in keeping with previous findings[8,9]. The pulse duration of 450 microseconds is at the lower end of the thermal relaxation time range for skin vasculature and may explain why PDL is more effective in children than in adults, in whom the caliber of ectatic vessels increases with age[1].

PWS located in the face respond better to laser therapy than those in the trunk and extremities. Katugampola and Lanigan obtained good results in 52% of facial lesions in contrast to 18% of non-facial lesions. We could not demonstrate this in our review due to our small sample size. A study by Nguyen et al concluded that the location of PWS was the most important factor in lesion clearing, followed by size, then age[9]. According to the literature, about 30% of PWS do not respond to PDL treatment[7]. There are various explainations for this. Firstly, a 0.45 ms exposure is too long for small vessels but too short for more ectatic vessels; secondly, vessels in adult patients and dark PWS may be located deep in the dermis. For these lesions, other lasers such as long-pulsed tunable dye laser (LPTDL), pulsed Nd:YAG and IPL systems may be used.

Hyperpigmentation can be observed in up to 30% and hypopigmentation in up to 2% of patients[7]. Because of higher melanin content, there is a higher risk of hyper- or hypopigmentation in dark-skinned patients as shown by previous studies, but this is not seen in our study.

This study has all the limitations of a retrospective analysis. We relied heavily on patients' assessment of the treatment response and did not use serial photographs taken in identical settings or a blinded observer for assessment.

The results of this study indicate that although the PDL treatment of PWS in dark-skinned patients is less effective in comparison with lighter skin, PDL treatment is worthwhile as some patients can achieve a good response and should not be deprived from the potential cosmetic benefit that can be gained.

Conclusion

The flash lamp-pumped PDL is an effective and safe treatment modality for PWS. Although the results of this review are less encouraging than previous studies on dark-skinned patients, it is possible to get a good response and complications are rare. PDL is likely to remain as the standard of care in the treatment of PWS and newer PDL systems are probably better suited for resistant, nodular or hypertrophic cases. However, further randomized controlled studies using different laser parameters are required to determine the optimal laser settings for Asian patients with PWS.

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GENERAL DERMATOLOGY - Original Article

Hidradenitis Suppurativa: A review of 15 patients

Leelavathi M[1], *MMed*, Barath Y[2], *MD*, Gangaram HB[2], *FRCP*, Suraiya HH[2], *FRCP*, Norazirah MN[3], *MRCP*, Mazlin MB[3], *MRCP*

Abstract

Introduction Hidradenitis suppurativa is a chronically recurring inflammatory, scarring disease of the apocrine bearing skin. Its diagnosis is mainly clinical, characterized by recurrent multiple abscesses, sinuses and scarring of apocrine gland in the intertriginous areas. The aim of this study is to determine the demography and clinical features of patients with Hidradenitis suppurativa.

Methods A retrospective study was conducted to look at the demography and clinical features of patients with hidradenitis suppurativa over five years at the Dermatology clinic of Hospital Kuala Lumpur.

Results A total of 15 cases were identified. The most frequently affected age group was 21 to 30 years (62.5%) with a mean of 27.8 years. Hidradenitis was more common in males (73.4%) as compared to females (26.6%). There was no ethnic preponderance for developing this condition. The most commonly involved site was the axilla (73.3%) and the groin (73.3%) followed by the buttock (60.0%). The groin was the most commonly involved area among females (100%) while the axilla was more commonly involved among males (63.6%). The most common associated feature with this condition was acne. None of the patients had all the four features of follicular occlusion tetrad. One patient developed well differentiated squamous cell carcinoma (SCC) after seven years of diagnosis.

Conclusions Since the diagnosis of hidradenitis suppurativa is mainly clinical, commonly involved areas should be examined. Clinicians should be aware of the possible progression to squamous carcinoma hence all atypical lesions are best subjected for biopsy and histopathological examination.

Keywords *Hidradenitis suppurativa, apocrine glands*

Introduction

Hidradenitis suppurativa is a chronic recurring, inflammatory, scarring disease of the apocrine bearing skin. Its diagnosis is mainly clinical, characterized by recurrent multiple abscesses, sinuses and scarring of apocrine gland in the intertriginous areas such as the axilla, inguinal, inframammary, groin, gluteal cleft and buttock[1,2,3]. The non-intertriginous areas are not exempted but are less commonly involved[4]. The chronic nature of the disease leads to decreased quality of life with the formation of sinuses, foul smelling discharge and disfiguring scars[4,5].

Although commonly considered as a rare dermatological disorder, some studies report a point prevalence of 1-4.1% in the general population[1]. It is found more frequently among females compared to males in a ratio ranging from 2-5:1. The exact aetiology is not well understood but some studies have shown a dominance inheritance pattern in 27%, although a specific gene location has yet to be identified[6]. The suggested pathogenesis of this disorder is an initial event of follicular hyperkeratosis leading to secondary apocrine involvement, bacterial infection and rupture[7,8]. The role of androgens in this sequence of pathogenesis is undetermined[1].

Correspondence
Dr Leelavathi M, *MMed*
Consultant Family Medicine Specialist & Lecturer
[1]Department of Family Medicine, Faculty of Medicine
Pusat Perubatan Universiti Kebangsaan Malaysia
Jalan Yaacob Latif, Bandar Tun Razak
56000 Cheras, Kuala Lumpur
Email : drleelaraj@yahoo.com

[2]Department of Dermatology, Hospital Kuala Lumpur
[3]Dermatology Unit, Faculty of Medicine
Pusat Perubatan University Kebangsaan Malaysia

Acne conglobata, dissecting foliculitis of scalp and pilonidal sinus have been described to occur concurrently with hidradenitis suppurativa. The co-existence of these conditions is collectively known as follicular occlusion tetrad. The morphological features of these conditions are found to be similar while epidemiological features and response to therapy are different. This suggests that the association of these conditions could be due to a co-occurrence rather than a genetic or an underlying common pathology[9].

Histologically, early lesions demonstrate spongiosis of infra-fundibular region, dilatation of follicular infundibular region and comedone formation. Inflammation of the apocrine gland is considered a secondary event[1]. Obesity and tobacco use were found to have inconsistent association with the disease and it is not known whether these are the risk factors for hidradenitis suppurativa or a mere consequence of the chronic nature of this disorder. However a definite causal relationship has not been demonstrated for smoking and obesity[10,11].

Many modalities of therapy have been have been used for the treatment of hidradenitis suppurativa with varying results. The reason for this is perhaps due to the limited knowledge of the exact pathogenesis of this disease. Medical therapy such as topical and systemic antibiotics, retinoid, hormonal modulators and surgical therapies have been tried with varying results. Recently, treatments with immunosuppressive agents have been shown to produce remission, although the results were inconsistent. This modality of treatment however requires long term follow up as the risk of malignancy associated with these drugs is not known[1].

Materials and methods

This is a retrospective study to describe the demographic details and clinical features of patients with hidradenitis suppurativa over 5 years, from 1st January 2002 to 31st December 2006 at the Dermatology clinic, Hospital Kuala Lumpur.

All patients who had the history and clinical features of hidradenitis suppurativa of recurrent infected papules, nodules, sinuses or scars were included in the study. List of patients clinically diagnosed as hidradentis suppurativa was obtained from a computerized data base. Case notes of these patients were reviewed and their details collected using data collection forms and analyzed.

Results

A total of 15 patients were identified and their case notes analyzed. Patient's age ranged from 20 to 70 years with a mean of 27.8 years. The most frequently affected age group was 21 to 30 years (62.5%). The condition was found to be more common among males (73.4%) as compared to females (26.6%). The disease was found among 40% of the Malay ethnic group, 33% Indians and 27% Chinese. Family history of hidradenitis was elicited in 20% of the study population. The most common associated clinical feature with hidradenitis suppurativa was acne conglobata followed by smoking and obesity. None of the patients presented with all four features of the follicular occlusion tetrad. The other associated features are presented in Table 1.

Areas most commonly involved are axilla (73.3%), groin (73.3%) and buttock (60.0%). In females the most commonly affected site is the groin (100%) followed by axilla (75%). Among males, axilla was most frequently (63.3%) involved followed by buttock (54.5%). Site preponderance among the two genders is given in Table 2.

Four patients (26.7%) underwent a skin biopsy. Three out of the four showed histopathological features supporting hidradenitis suppurativa while one showed conversion to malignancy (squamous cell carcinoma) after a period of seven years. Results are displayed in Table 3.

Discussion and conclusions

In this study, hidradenitis suppurativa was found to be almost three times more common among males as compared to females (2.8:1). The number of male and female patients who attended the dermatology clinic during the year of study is almost equal (1:1.2). This finding is in contrast to studies among western population where hidradenitis is 2 to 5 times more common among females[1,2]. One possible explanation is underreporting. Female patients in Malaysia may be more reluctant to approach practitioners for treatment as lesions are commonly located in areas that may be embarrassing for them to expose for examination. Most (62.5%) of patients in this study were young adults in the age group of 21 to 30 years. This finding is similar to earlier studies[6].

The ethnic distribution of the population that attended the clinic in the study period is 3:1:1 for the Malay, Chinese and Indian while the ratio of

Table 1 Associated features of Hidradenitis suppurativa

Associated Features	Percentage
Acne conglobata	33.3
Smoking	13.3
Obesity	13.3
Alcohol consumption	6.7
No documentation	33.4
Total	**100.0**

Table 2 Site preponderance of Hidradenitis Suppurativa

Site	Male %	Female %
Axilla	63.6	75
Groin	36.4	100
Buttock	54.5	25
Chest	9	25
Inframammary	0	25
Abdomen	18.1	0

Table 3 Histopathology summary

Patients	Histopathology report
A	Chronic inflammation with scarring. Consistent with hidradenitis suppurativa
B	Follicular plugging, focal acanthosis with numerous vascular endothelial, superficial and deep inflammatory infiltrate.
C	Dermis has dense infiltration of acute and chronic inflammatory cells forming micro abscesses. Features consistent with hidradenitis suppurativa
D	Several biopsies: 1998 Left buttock: sinus 1999 Right buttock: epidermal cyst 2005 Chin and back: epidermal cyst 2007 Right buttock: well differentiated SCC

disease of occurrence is 1.5:1:1.2 respectively. This study does not demonstrate any ethnic preponderance of hidradenitis suppurativa. Some earlier studies have noted a greater preponderance in black population[1] while others found no racial preponderance[11]. Positive family history was found in 20% of the patients which is almost similar to western data[6,12].

In this study, axilla is a common site for this condition among males and females while groin lesions were commoner among females. This is similar to western data[1], but some studies show that anogenital lesions are more common in men than women[6] while others show that axillary lesion has no gender preponderance[1]. Hence there may be a discrepancy in the distribution of the lesions in relation to gender without any significance.

About 20% of patient had at least one other component of follicular occlusion tetrad. The common ones being acne conglobata (13.3%) and dissecting foliculitis (6.6%) but none of these patients had all four components supporting the possibility that the association of these conditions may be due to an incidental co-occurrence[9]. One male patient, developed squamous cell carcinoma at the age of 73 years. This was confirmed by a biopsy at the site of initial lesion after seven years of diagnosis. Many studies in the past have found association between hidradenitis suppurativa and non melanoma cancer. Lapins et al, found a significant (50%) association between hidradenitis suppurativa and malignant neoplasms. The commonest type is squamous cell carcinoma at the site of lesion followed by buccal and primary liver cancer. The average age at which patients developed

cancer in that study was 51 to 55 years which is about 1 to 32 years after diagnosis. It is postulated that the chronic event of inflammation and infection with coagulase-negative staphylococci may cause proliferative epidermal changes leading to cancer. More females compared to males were found to be associated with non melanoma cancer. This could be due to the earlier onset of this disease among females compared to males causing prolonged exposure to chronic inflammatory process and hence malignant transformation[13].

The occurrence of hidradenitis suppurativa may not be as infrequent as previously assumed but may be under diagnosed. Since the diagnosis is mainly clinical, clinicians should have a high index of suspicion of this skin disease. Commonly involved areas should be examined and appropriate referral to the nearest skin facility should be made. This is because the management of this condition is difficult in view of inconsistent treatment response and frequent recurrences. Clinicians should be aware of the possibility of the lesions progressing to squamous cell carcinoma, hence atypical lesions are best biopsied for histolopathological examination. Although an exact causal relationship between smoking and hidradenitis suppurativa has not been identified, it would be interesting to conduct a prospective study looking at the progress of the disease in relationship with cessation of smoking.

One of the limitations of this study is the small sample size. Severity of symptoms and treatment outcomes could not be measured due to the retrospective nature of this study.

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GENERAL DERMATOLOGY - Original Article

A 5-year retrospective study on onychomycosis and its causative organisms in University Malaya Medical Centre (UMMC)

Lau SL[1], *MBBS*, Wong SM[2], *MRCP*

Abstract

Introduction Onychomyosis is a common infection of the nails, caused by dermatophytes, non-dermatophyte moulds or yeasts. There are four main types of onychomycosis which include lateral and distal onychomycosis, proximal onychomycosis, superficial white and total dystrophic onychomycosis. We performed a retrospective analysis looking into the recent trends of onychomycosis in a University Hospital in Malaysia.

Materials and methods Data was collected from all patients who had their nail clippings cultured for fungal infection from January 2004 to December 2008, and were analysed.

Results There were 272 nail specimens in total. The majority of specimens were from adults (65.8%), followed by the elderly (23.9%) and children and adolescents made up 10.3%. The mean age of the study population was 49.9 ± 19SD years. Of the 189 specimens with positive fungal culture, 110 (40.4%) were non-dermatophyte moulds, followed by yeasts predominantly Candida species (17.6%), 3 (1.1%) were dermatophytes, and 28 (10.3%) were a mixed infection of dermatophytes, non-dermatophyte moulds and yeasts.

Conclusion From this study, it was found that onychomycosis in our hospital from 2004 to 2008 were mainly caused by non-dermatophyte moulds. Treatment may be challenging as non-dermatophyte onychomycosis are more resistant to treatment.

Keywords *Onychomycosis, causative organism*

Introduction

Onychomycosis is defined as an infection of the nails caused by fungi, including dermatophytes, non-dermatophyte moulds and yeasts. When infection is caused by dermatophytes, the term tinea unguium is often used. Onychomycosis may affect toenails or fingernails, but toenail infections are particularly common. Onychomycosis is common and comprises 20% of all nail disease. Studies have shown that 30% of patients with dermatophyte infection on other parts of the body have tinea unguium[1]. The disease is more common in males and the prevalence increases with age[2]. Children have infection rates thirty times lower than adults due to smaller nail surfaces and faster nail growth. The majority of onychomycosis in children is related to the presence of fungal infection in other family members[3].

The general risk factors for any type of onychomycosis are increasing age, male gender, diabetes mellitus, nail trauma (onychogryphosis), hyperhidrosis, peripheral vascular diseases, poor hygiene, tinea pedis, especially the "moccasin type" and immunodeficiencies[4]. In cases of candidal onychomycosis in particular, chronic exposure of the nails to water can be a significant risk factor.

Based on the form of infection and the associated clinical appearance, onychomycosis can be divided into 4 clinical types: distal and lateral subungual

Correspondence
SM Wong, MRCP
[2]Dermatology Unit, Department of Medicine,
University Malaya Medical Center, Kuala Lumpur
E-mail : smwong@um.edu.my

[1]Medical student, MBBS,
University Malaya, Kuala Lumpur

onychomycosis (DLSO) which is the most common type, proximal subungual onychomycosis (PSO), white superficial onychomycosis (WSO), and total dystrophic onychomycosis.

We conducted a retrospective analysis looking into recent trends of onychomycosis in a University Hospital in Malaysia.

Materials and methods

This was a retrospective study carried out at the University Malaya Medical Centre (UMMC) from January 2004 to December 2008. During the study period, data was collected from patients who had their nail clippings cultured for fungal infection. All patients who presented to the skin clinic, medical ward and also other in-patient wards in UMMC were included. Patients were categorized into children and adolescents (1-20 years old), adults (21-64 years old) and the elderly (65 years old).

Results of mycological investigations were reviewed at the Medical Microbiology Department. Nail specimens were obtained by clipping and specimens were sent to the mycology laboratory for microscopic examination in potassium hydroxide 40% (KOH) and also fungal culture in Sabouraud dextrose agar (SDA). All media were supplemented with gentamicin and chloramphenicol. The fungal culture in SDA plates were incubated at 30°C and cultures were examined twice a week for up to 4 weeks. The presence of fungal elements on direct microscopy including mycelium, arthrospores and yeasts was considered to be positive. No growth at the 4th week was considered as culture negative.

The causative organisms either dermatophytes, non-dermatophyte moulds or yeasts were identified from the mycology reports. The trend of these fungal infections were studied and compared with other similar studies done.

Results

Among the 272 nail specimens collected from January 2004 to December 2008, 162 patients were female (59.6%) and 110 patients (40.4%) were male. Most of the specimens were from Chinese patients, (102, 37.5%), followed by Malays (83, 30.5%), Indians (69, 25.4%) and 18 from other races (6.6%). The majority of specimens were from adults (179, 65.8%), followed by the elderly (65, 23.9%) and children and adolescents made up 10.3%. The mean age of the study population was 49.9 ± 19SD years. The specimens were mainly obtained from the skin clinic (84.2%). The general demography of patients in this study is summarized in Table 1.

Out of the 272 specimens which were examined by direct microscopy, only 240 had recorded results. 170 (62.5%) were negative for fungal elements and 70 (25.7%) were positive for fungal elements. Among the 170 specimens which were negative on direct microscopy, 110 specimens were found to be positive on fungal culture. As for the specimens which were positive on direct microscopy, 54 specimens were culture positive and 16 were negative on fungal culture (Table 2).

Of the 189 specimens with positive fungal culture, 110 (4 Aspergillus species was the most common of the non-dermatophyte moulds, followed by Fusarium species. The Fusarium species that were isolated include F. solani and F. oxysporum. 0.4%) were non-dermatophyte moulds, followed by yeasts predominantly Candida species (48, 17.6%), 3 (1.1%) were dermatophytes, and 28 (10.3%) were a mixed infection of dermatophytes, non-dermatophyte moulds and yeasts. Scytalidium dimidiatum made up of 13.7% all moulds isolated. Other moulds isolated were Curvularia lunata (3.6%), Mycelia sterilia (3.6%), Penicillium species (2.7%), Non-sporulating chrysosporium (2.7%), Paecilomyces species (1.8%), Malbranchea species (0.9%), Stemphylium species (0.9%), Madurella grisea (0.9%) and Collectotrichum coccodes (0.9%).

Candida parapsilosis was the most common yeast isolated. It made up 60.4% of all yeasts isolated. This was followed by C. albicans (20.8%) and C. tropicalis (12.5%). C. guilliermondii, C. glabrata and trichosporon sp. made up 2.1% respectively.

For dermatophytes, Trichophyton species was the most common isolated dermatophyte (67.7%), followed by Microsporum nanum (33.3%).

Mixed infections of dermatophytes, yeasts and moulds were found in 10.3% of the patients. The most common mixed infections were C. parapsilosis +Aspergillus sp. (17.9%) followed by C. albicans + Penicillium sp. (7.1%) and C. albicans + Scytalidium dimidiatum (7.1%). One of the mixed infections was contaminated with bacteria, Cladosporium sp. + Anaerobic actinomycetes. (Table 3).

Table 1 Demography of patients

Patient characteristics		No. of patients, (%) n=272
Gender	Male	110 (40.4%)
	Female	162 (59.6%)
Ethnic	Malay	83 (30.5%)
	Chinese	102 (37.5%)
	Indian	69 (25.4%)
Age group	Others	18 (6.6%)
	Adult (21-64 year old)	179 (65.8%)
	Elderly (65 year old)	65 (23.9%)
	Children and adolescent (1-20 years old)	28 (10.3%)
	Mean age	49.9 ± 19 SD years
Location	Skin clinic	229 (84.2%)
	Medical ward	14 (5.1%)
	Other in-patient ward	28 (10.3%)
	Not specified	1 (0.4%)

Table 2 Comparison on direct microscopy and fungal culture

Fungal Culture	Positive, n (%)	Negative, n (%)
Direct microscopy		
Positive (n=70)	54 (77.1%)	16 (22.9%)
Negative (n=170)	110 (64.7%)	60 (35.3%)

Discussion

Onychomycosis affects approximately 5% of the population worldwide. In developing countries, higher priorities in socioeconomic concerns and health issues for other diseases have resulted in a lower awareness of onychomycosis by physicians and the general public alike. Despite improved personal hygiene and living environment, onychomycosis continues to spread and persist. Onychomycosis is too often regarded as merely a cosmetic problem of relatively minor importance that is hardly worth the effort to seek treatment in many cases.

The epidemiology and aetiology of onychomycosis may vary in different countries due to geographical differences. The climate, exposure of population and the health economics is a major contributing factor. In the European study and survey, higher prevalence rate of onychomycosis were shown in males[5]. In our study however, a female preponderance was shown with a female to male ratio of 3:2. Similar trends were reported in studies from East Asia (China, South Korea and Taiwan). This is not surprising as females may be more concerned about nail appearances and therefore more inclined to seek treatment.

Table 3 The prevalence of fungus isolated from nail clippings

Causative organisms	No. of patients, No. (%), n=272
No Growth	**83 (30.5)**
Moulds	**110 (40.4)**
Aspergillus species	
Aspergillus sp.	37 (13.6)
A. niger	13 (4.8)
Fusarium species	
Fusarium sp.	19 (7.0)
F. solani	3 (1.1)
F. oxysporum	3 (1.1)
Scytalidium dimidiatum	15 (5.5)
Curvularia lunata	4 (1.5)
Mycelia sterilia	4 (1.5)
Penicillium species	3 (1.1)
Non-sporulating chrysosporium	3 (1.1)
Paecilomyces species	2 (0.7)
Malbranchea species	1 (0.4)
Stemphylium species	1 (0.4)
Madurella grisea	1 (0.4)
Collectotrichum coccodes	1 (0.4)
Yeasts	**48 (17.6)**
Candida species	
C. parapsilosis	29 (10.7)
C. albicans	10 (3.7)
C. tropicalis	6 (2.2)
C. guilliermondii	1 (0.4)
C. glabrata	1 (0.4)
Trichosporon species	1 (0.4)
Dermatophytes	**3 (1.1)**
Trichophyton species	2 (0.7)
Microsporum nanum	1 (0.4)
Mixed infections	**28 (10.3)**
C. parapsilosis +Aspergillus sp.	5 (1.8)
C. albicans + Penicillium sp.	2 (0.7)
C. albicans + Scytalidium dimidiatum	2 (0.7)
C. parapsilosis + A. niger	1 (0.4)
C. parapsilosis + Curvularia lunata	1 (0.4)
C. parapsilosis + Cladosporium sp.	1 (0.4)
C. parapsilosis + Fusarium sp.	1 (0.4)
C. parapsilosis + C. albicans	1 (0.4)
C. tropicalis + Aspergillus sp.	1 (0.4)
C. glabrata + Aspergillus sp.	1 (0.4)
Aspergillus sp. + Penicillium sp.	1 (0.4)
Aspergillus sp. + Fusarium sp.	1 (0.4)
Aspergillus sp. + Mucor sp.	1 (0.4)
Aspergillus sp. + Bipolaris sp.	1 (0.4)
Aspergillus sp. + Scytalidium dimidiatum	1 (0.4)
Fusarium sp. + Scytalidium dimidiatum	1 (0.4)
Scytalidium dimidiatum + mycelia sterilia	1 (0.4)
Cladosporium sp. + Trichosporon sp.	1 (0.4)
Cladosporium sp. + Non-sporulating chrysosporium	1 (0.4)
Penicillium sp. + Non-sporulating chrysosporium	1 (0.4)
Paecilomyces voriotti + Malbranchea sp.	1 (0.4)
Cladosporium sp. + Anaerobic actinomycetes	1 (0.4)

Several studies have reported that prevalence of onychomycosis increases with age, with the highest prevalence among elderly more than 60 years old. The reasons for which may include poor peripheral circulation, diabetes, repeated nail trauma, longer exposure to pathogenic fungi, sub optimal immune function, inactivity or the inability to cut the toe nails or maintain good foot care. However from our study, we have observed the highest incidence in the adult age group (21-64 years old). Our postulation is that since 84.2% of the samples were collected from the skin clinic, which is an outpatient clinic, the population reflected is most probably of the working age group.

Previous studies done in Malaysia, Singapore and Hong Kong showed that dermatophytes were persistently reported as the most common causative organism in onychomycosis, followed by yeasts and non-dermatophyte moulds[2,6,7,8]. Our study interestingly showed non-dermatophyte moulds as the most common causative organism. This is followed by yeasts, mixed infections and dermatophytes. There is an obvious change in the trend of causative organisms compared with a previous study done in the same hospital from 1996-1998[6]. However, our study is similar to a study done in Thailand, where more than half of their patients who were clinically diagnosed with onychomycosis had non-dermatophyte infections[9].

In contrast with the previous study done in our hospital which showed that dermatophytes were the most common isolated organism (36.1%), followed by moulds (35.5%). Our study on the other hand, showed non-dermatophyte moulds to be the most common pathogen and dermatophytes to be the least common. In addition, among the non-dermatophyte moulds isolated in the previous local study, the most isolated was A. niger, A. fumigates and Hendersonula toruloidea (now known as Scytalidium dimidiatum). Whereas in our study Aspergillus sp., A. niger, Fusarium sp. and Scytalidium dimidiatum were the moulds most isolated. As for yeasts, C. albicans was previously most isolated followed by C. parapsilosis. Our study showed a change in trend in which C. parapsilosis was the most isolated yeast followed by C. albicans and C. tropicalis. The mixed infection in our study was higher (10.3%) compared to 1.1% of the previous study. It is obvious that the trend of onychomycosis has changed from the 1990s to the 21st century in that non-dermatophyte moulds are emerging as the more dominant causative pathogen. This may be important knowledge in terms of treatment as non-dermatophyte onychomycosis is generally more difficult to treat and resistant to the usual oral anti-fungals.

Conclusions

From this study, it was found that onychomycosis in our hospital from January 2004 to December 2008 were mainly caused by non-dermatophyte moulds. This is something to be looked into by physicians and dermatologists as non-dermatophyte moulds are difficult to eradicate. Furthermore, treatment of non-dermatophyte onychomycosis is not well standardized, and can be difficult. Therefore, it is important that mycological studies to identify the causative organisms are carried out before systemic antifungal therapy is started on patients who are clinically diagnosed with onychomycosis.

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GENERAL DERMATOLOGY - Short Communication

Persistent groin itch

Tang MM, *AdMDerm*, Chang CC, *AdMDerm*, Asmah J, *MMed*

Dear Editor,
We would like to share with you our experience in the management of a 14-year-old schoolgirl with a persistent itch over the groin. She was referred to us for a 6-month history of intense pruritic rash over the groin and abdomen. The rash was persistent despite repeated application of topical antifungal therapy for the last 6 months.

Clinically, there were confluent hyperpigmented lichenified plaques with excoriations over the groin involving the inguinal folds, thighs, pubic region and a discrete plaque over the left lower abdomen (Figure 1).

Figure 1 Pediculosis corporis before treatment

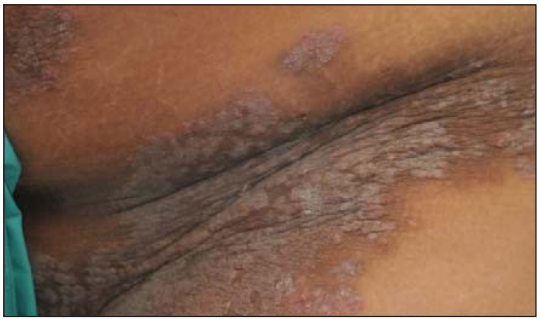
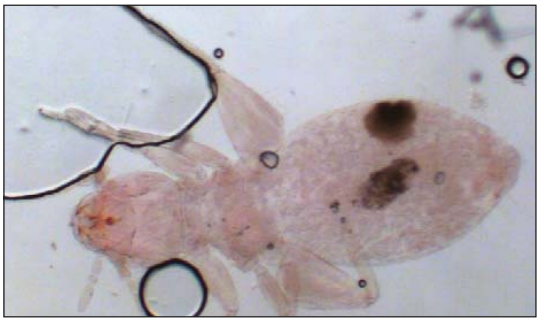


Figure 2 Pediculosis humanus var corporis (body louse) demonstrated under microscopic examination of skin scraping(x40)

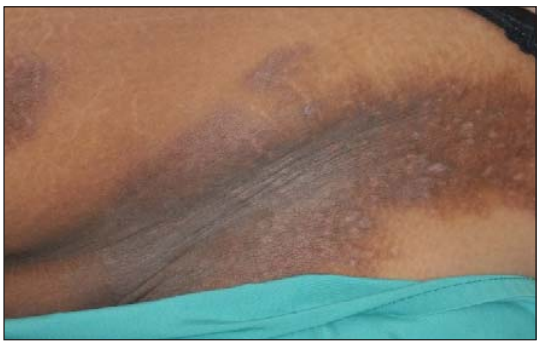


Correspondence
Tang Min Moon, *AdMDerm*
Dermatologist, Department of Dermatology
Hospital Kuala Lumpur, Kuala Lumpur
E-mail : minmoon2005@yahoo.com

There were no similar lesions on other parts of the body. Scraping for microscopic examination of the lesions with 20% potassium hydroxide revealed a body louse (Figure 2).

A diagnosis of pediculosis corporis with secondary eczematization was made. She was treated with 1% gamma-benzene hexachloride (Lindane) and medium potency topical corticosteroid for the chronic eczematous lesions. Loratidine 10mg/day during the day and oral chlorpheniramine maleate 4mg before sleep were also prescribed to reduce the pruritus. She was given specific instructions to soak the bed sheet, pillow case and the garments in boiled water for at least 15minutes and then dry under the sun. Two weeks after the treatment, the itch was less and the chronic eczema improved remarkably as shown in Figure 3.

Figure 3 Two weeks after treatment with 1% gamma-benzene hexachloride and topical corticosteroid



Discussion

Pediculosis corporis is caused by human body louse Pediculus humanus var corporis. Lice are wingless, blood-sucking ectoparasites with high human host specificity[1]. An adult body louse measures between 2-4mm in length and have a lifespan of about 18 days. A female louse lays 270-300 ova in its lifetime and these ova are deposited in the clothes of infested individuals. The ova hatch into nymph after 8-10 days. Each nymph matures into adult in 2 weeks time. The optimum temperature for its development is 30-32˚C.

The body louse clings to textile fiber and lives in the seams of clothing. It feeds on human blood but does not live on the skin. In massive infestations they may be seen moving about the body. Body lice are very active at 30˚C, crawling with a remarkable speed of a meter in 3 minutes. The thermal death point is about 44˚C. In our case, it was interesting to find the louse in the skin scraping. It is likely that the louse caught on the scraping was feeding on the schoolgirl's blood.

Pediculosis corporis is found worldwide but generally is limited to persons who live under conditions of crowding and poor hygiene[2]. Infestation occurs only when clothes are not changed or washed regularly. The indigent, homeless, nursing homes and refugee-camp populations are commonly affected[3,4]. Our patient, who is staying in a flat with both her father and brother, did not share a common bedroom with them. Her parents were separated. According to her mother who is living separately, the house was untidy and did not receive adequate sunlight. The clothes were hand-washed and hanged to dry. Therefore, suboptimal personal hygiene was the most likely explanation for the body louse infestation in our patient.

In body-louse infestation, the axillae, groin and truncal areas are usually more severely affected. Severe pruritus is accompanied by papules related to bite reactions as well as excoriations that may become secondarily infected. Secondary eczematization commonly results from continuous scratching. In chronically affected patients, post-inflammatory hyperpigmentation is observed.

Certain pathogenic bacteria, such as Rickettsia prowazekii, Borrelia recurrentis and Bartonella quintana which are carried by body lice are the greatest fear in patients who have pediculosis. They can cause life threatening infections such as epidemic typhus, relapsing fever, trench fever and bacillary angiomatosis[1-4]. Transmission of microorganisms from body lice to humans is not directly due to the lice bite, but by contaminated faecal pellets being scratched into the bite site, or by inhalation of dry, powdery lice faeces from infested bedding or clothing. Hence, it is important to treat this condition to prevent the transmission of bacterial infection.

In order to eradicate body lice, bed linens and clothing belonged to the patients must be decontaminated. Most clinicians recommend patients to decontaminate the clothes and bed linens by heating them to above 60˚C for 15-30 minutes. However in the past, some physicians advise the clothes and bed linens of infested patients to be discarded in tightly sealed plastic bags and burned[3]. Topical pediculocides are often prescribed, which include 5% permethrin cream, 1% gamma benzene hexachloride (Lindane) and 5-10% sulfur in a petrolatum base. The treatment regimes are no different from those used in scabies[5]. An outbreak necessitates delousing of individuals with 1% permethrin dusting powder, decontaminating the bed linens and garments using heat methods as well as ensuring basic sanitation and personal hygiene.

In conclusion, we reported a schoolgirl who had pediculosis corporis mimicking dermatophyte infection of the groin. Body lice should be considered as a differential diagnosis of pruritic dermatoses in patients with poor personal hygiene.

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GENERAL DERMATOLOGY - Short Communication

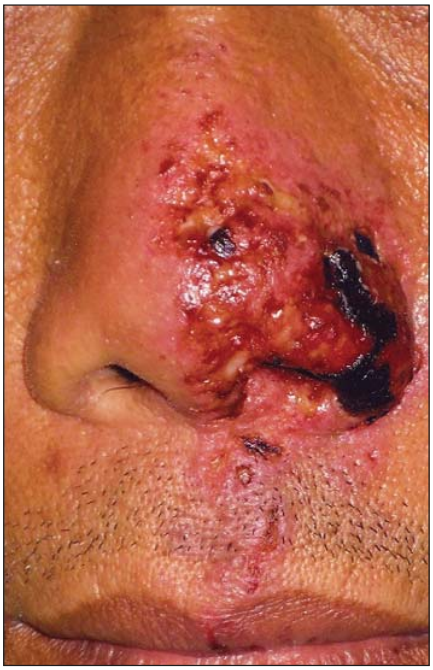
Herpes Zoster presenting as cellulitis

Kader B Mohamed

Dear Editor,
We have encountered a 56-year old man who was referred to us as cellulitis of the nose when he presented with erythematous, crusted pustule, painful and warm lesions over the left side of the nose for the past 5 days. The lesions were strictly unilateral and well-delineated although there was tender swelling over the right side of the nose (Figure 1). There was a history of pain preceeding vesicular eruption. The ipsilateral lower eye lid, upper lip and the nasal septum were involved. These areas are supplied by the infra orbital nerve which is the continuation of the maxillary division of the trigeminal nerve. The palate was not involved. He responded well to aciclovir and cephalosporin but suffered from post-herpetic neuralgia.

Pain preceding unilateral vesicular eruptions, in a dermatomal distribution prompts the diagnosis of herpes zoster of the infraorbital branch of the maxillary division of the trigeminal nerve.

Figure 1 Crusted vesicular and pustular lesions on a swollen nose



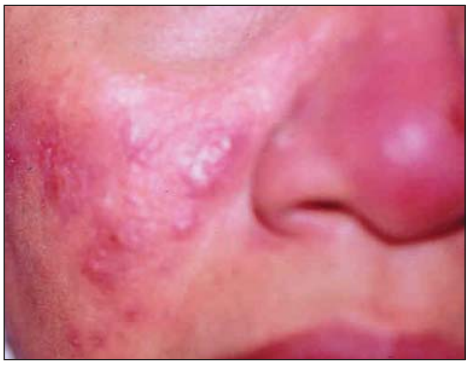
Correspondence
Kader B. Mohamed
Consultant Dermatologist Dept. of Dermatology
Sultanah Fatimah Specialist Hospital
84000 Muar, Malaysia

GENERAL DERMATOLOGY - Self Assessment

Clinical diagnostic skill test

Tick at the provided space [✔] against answers that correlate to the slide.
Check your answer on **page 58**. Refer to the given criteria in **page 59** to discover your clinical diagnostic skill status.

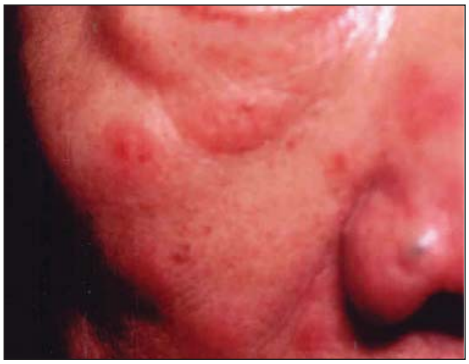
Slide A



A

- [ ] ADR
- [ ] tumour
- [ ] appendageal disorders
- [ ] bacterial infection
- [ ] autoimmune disorders
- [ ] pseudolymphoma
- [ ] lupus erythematosus
- [ ] lymphoma
- [ ] leprosy
- [ ] rosacea

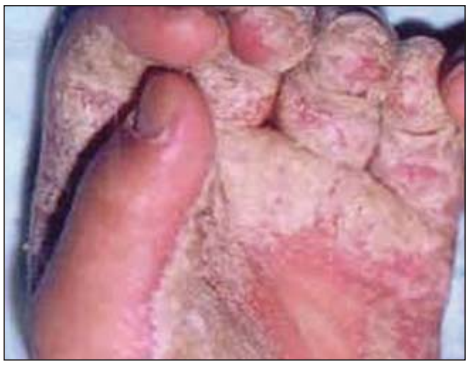
Slide B



B

- [ ] ADR
- [ ] tumour
- [ ] appendageal disorders
- [ ] bacterial infection
- [ ] autoimmune disorders
- [ ] pseudolymphoma
- [ ] lupus erythematosus
- [ ] lymphoma
- [ ] leprosy
- [ ] rosacea

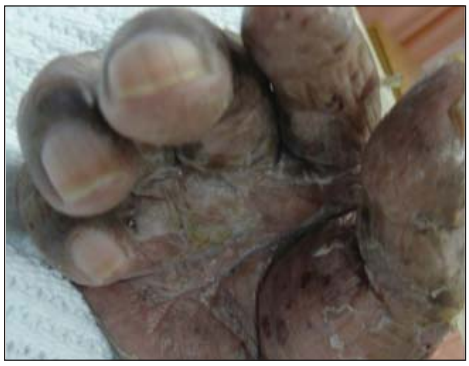
Slide C



C

- [ ] psoriasis
- [ ] keratoderma
- [ ] acanthosis
- [ ] erythroderma
- [ ] scabies
- [ ] lichen planus
- [ ] contact dermatitis
- [ ] fungal infection
- [ ] secondary syphilis
- [ ] rosacea

Slide D



D

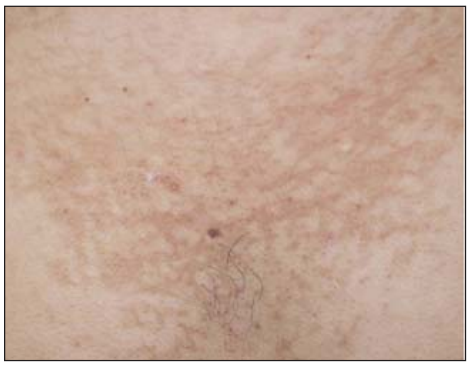
- ☐ pomphylx
- ☐ keratoderma
- ☐ acanthosis
- ☐ erythroderma
- ☐ scabies
- ☐ lichen planus
- ☐ contact dermatitis
- ☐ vasculitis
- ☐ bullous disease
- ☐ scalding

Slide E

E

- ☐ ADR
- ☐ non-infective inflammation
- ☐ fungal infection
- ☐ tumour
- ☐ dermatitis
- ☐ post-inflammatory hyperpigmentation
- ☐ congenital naevus
- ☐ acanthosis
- ☐ arsenic poisoning
- ☐ mycosis fungoides

Slide F



F

- ☐ dermatitis
- ☐ non-infective inflammation
- ☐ fungal infection
- ☐ viral infection
- ☐ appendageal disorders
- ☐ pityriasis versicolor
- ☐ psoriasis
- ☐ herpes viral infection
- ☐ discoid dermatitis
- ☐ pityriasis rosacea

ADVERSE DRUG REACTIONS - Update from Malaysian National Pharmaceutical Control Bureau

Cutaneous adverse drug reaction: a medical concern?

Tan LS, Fuziah AR, Ng SP

Keywords *Cutaneous adverse drug reaction, Stevens-Johnson Syndrome, Toxic Epidermal Necrolysis, Prevalence*

Many people perceive that dermatological condition is not as serious or life-threatening as the other more publicized medical conditions like cancer, heart disease or even diabetes. They think that it will do no harm other than invoking embarrassment or the occasional itchiness and pain. However, we should not forget that dermatological conditions involve the largest organ in a human's body - the skin.

Besides cutaneous infections, autoimmune skin diseases and chronic non-infective dermatological conditions, a major cause of concern in the dermatological field is drug-induced skin reaction. Cutaneous adverse drug reaction (ADR) is a condition whereby a patient suddenly develops an unwanted symmetrical cutaneous eruption after taking medications.

World Health Organization define Cutaneous ADR as a noxious, unintended morphological skin changes with or without systemic involvement, developed after the local or systemic administration of drugs in dosages commonly used for prevention, diagnosis or treatment of disease or modification of physiological functions[1].

The severity of adverse drug reactions is often underestimated. It is responsible for significant morbidity, mortality and socioeconomic costs. Currently, most of the available epidemiological studies refer to ADRs in general and are conducted based on hospitalised patients. For example, in one of these studies which were carried out by Bates et al.[2] using data from the Boston Collaborative Drug Surveillance Programme, it was found that ADRs were reported in 6.1% of hospitalized patients.

Pirmohamed et al.[3] conducted a prospective study in two UK National Health Service hospitals in Merseyside, comprising of 18,820 patients admitted over a 6-month period. It was found that 1,225 (6.5%) admissions were related to an ADR. In Singapore, a 2-year prospective study which was carried out by Thong et al.[4], detected 366 cases of reported drug allergy from a total of 90,910 inpatients. As for the epidemiological data on cutaneous adverse drug reaction, it is still very scarce and limited. However, there was one particular study which concluded that cutaneous adverse drug reaction occurred in 2 - 3% of all hospitalized patients. Apart from this, there is also a lack of comprehensive data or studies amongst out-patients on both ADRs in general and cutaneous adverse drug reaction in particular. This inadequacy of data could be due to several reasons like diagnostic dilemmas and lack of awareness to report such cases.

To date, in Malaysia, no such specific studies on the prevalence of ADRs were conducted or carried out in both inpatients and outpatients settings. The only relevant data which was obtained from the National Pharmaceutical Control Bureau (NPCB) showed that out of the 4,826 adverse drug reactions reports received in 2008, about one third (31.8%) of these were classified under spontaneous skin reactions which is used interchangeably with cutaneous adverse drug reaction in this article. This is consistent with the findings in a study carried out by Gomes et al[5].

Several studies were conducted worldwide and concluded that medications which are commonly known for causing cutaneous reactions include antimicrobial agents, nonsteroidal anti-

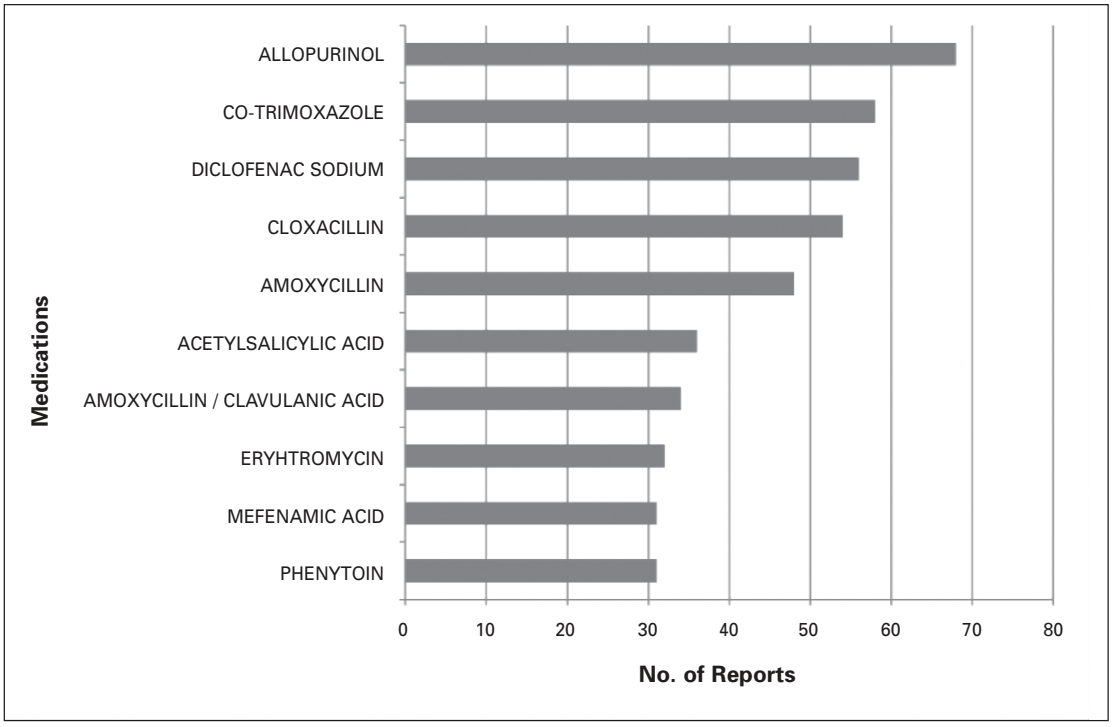
Correspondence
Su-Ann
Pusat Pasca Pendaftaran Produk
Biro Pengawalan Farmaseutikal Kebangsaan
Jalan Universiti, Peti Surat 319
46730 Petaling Jaya, Selangor
E-mail : suephay@bpfk.gov.my

inflammatory drugs (NSAIDs), cytokines, chemotherapeutic agents, anticonvulsants, and psychotropic agents. A retrospective case-control study from Singapore conducted by Kidon et al.6 showed that almost 70% of the reported ADR cases in pediatrics involved the use of antibiotics (especially β-lactam antibiotics (45%) and NSAIDs (18.5%) were the second most implicated group. Borch et al.[7] also reported that β-lactam antibiotics is the most implicated drug group in cutaneous ADR contributing to 22.8% of the cases studied.

As for Malaysia in Year 2008, 45% of ADR notified were antibiotics induced skin reaction followed by NSAIDs (13%) and antiepileptic. Figure 1 shows the top ten drugs most commonly reported for cutaneous adverse drug reaction in the year 2008. Fifty percent of these top ten medications reported falls into the antibiotic group and the penicillin-based β-lactam antibiotics are the most commonly implicated drug.

The analysis of the data by Chatterjee et al.[8] showed that urticaria and fixed drug rashes were the most common morphological reaction-types. A summary of various studies showed that the most common morphological reactions encountered in cutaneous adverse drug reactions are exanthematous eruption (maculopapular eruption), urticaria, fixed drug eruption and erythema multiforme. There is a variation in terms of incidence rate for each of these morphological reactions due to different patterns of drug usage and different ethnic group characteristics. In our country, the most common manifestations of drug-induced skin reactions are itching, pruritic maculopapular rashes and erythematous rashes. These manifestations were reported in about 95% of the 1535 skin spontaneous reports received in 2008. This is similar as compared to the prospective study carried out by Thong et al.[4] in Singapore whereby cutaneous manifestations were the most common clinical presentation contributing to 95.7% of the total cases. This type of drug eruptions is usually mild, self-limited, and resolve after the offending medication has been discontinued.

Figure 1 Malaysian top ten most commonly reported drug induced cutaneous adverse drug reactions (Year 2008)



However, more severe and potentially life-threatening adverse drug reactions may also occur. A variety of studies were carried out to identify the mortality rate of ADRs in general. In the USA, a study done by Lazarou et al.[9] showed that 0.32% of hospitalized patients died from ADRs. On the other hand Pirmohamed et al.[3] found that the overall fatality related to ADRs was 0.15%. In the study of Fattinger et al., the estimated incidence of possible ADR-related deaths was similar at 0.14%[10]. Even though these studies did not investigate the mortality rate of cutaneous adverse drug reaction in particular; it has always been known that the two most common potentially life-threatening cutaneous ADRs are Stevens - Johnson syndrome (SJS) and Toxic Epidermal Necrolysis (TEN). These two conditions not only may cause prolonged hospitalisation, they significantly contribute to higher mortality rates in cutaneous adverse drug reaction. It was reported that SJS has a mortality rate of less than 5%, whereas the rate for TEN approaches 20-30%[11] as most patients die from sepsis. A total of 38 cases of SJS and 12 cases of TEN associated with adverse drug reactions were reported in Malaysia last year. These figures contributed to 3.2% of the total skin spontaneous reaction reports received. Fortunately, among these reported cases, none were known to be fatal. However, the socioeconomic cost due to these cases is still yet to be determined.

In conclusion, cutaneous adverse drug reaction may not have as high a fatality rate as some other medical conditions, but it is proven to be a distressing issue in the medical field because instead of providing medication relief to patients, it causes iatrogenic disease. However with the number of new drugs which are being developed and entering the market on a daily basis, this is inevitable. Therefore, it is the responsibility of all health professionals to weigh the benefits and risks of each and every therapeutic decision carefully. Currently, with the increasing trend of self-medication by patients and poly-pharmacy prescribing, healthcare professionals have to be alert in detecting these potential adverse events and if possible, prevent them from happening. It is important to educate the general public that no medicines are without risk or totally safe to use. Throughout these years, the WHO has been promoting pharmacovigilance in most countries. By working with the WHO Collaborating Centre for International Drug Monitoring (Uppsala Monitoring Centre), it aims to enhance and improve patient care and patient safety in relation to the use of medicines, thus encouraging safer and more effective use of medicines. Therefore it is important to emphasize the responsibility of all health professionals to be more vigilant and to report the relevant cases to the regulatory authority at national level for regular monitoring. This medical issue should not be taken lightly or ignored.

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ADVERSE DRUG REACTIONS - Case Report

Aplasia cutis congenita secondary to maternal exposure to carbimazole during pregnancy. A case report

Tey KE, *MRCP*, Chong YT, Choon SE, *MRCP*

Keywords *Aplasia cutis congenita, carbimazole, pregnancy*

Introduction

Aplasia cutis congenita (ACC) is a rare anomaly presenting with absence of skin. It was first reported by Cordon in 1767. About 70% of cases manifests as a solitary defect on the scalp, but sometimes it may occur as multiple lesions. The lesions are typically well demarcated, non-inflamed, and they range in size from 0.5cm to 10cm. ACC may be circular, oval, linear, or stellate in configuration. At birth, lesions may appear as scars or ulcers[1]. They may appear as parchment-like scars with alopecia.

Most lesions occur on the scalp vertex just lateral to the midline, but defects may also occur on the face, the trunk, or the limbs, sometimes symmetrically. The depth may involve only the epidermis and the upper dermis, resulting in minimal alopecic scarring, or the defect may extend to the deep dermis, the subcutaneous tissue, or rarely the periosteum, the skull, and the dura.

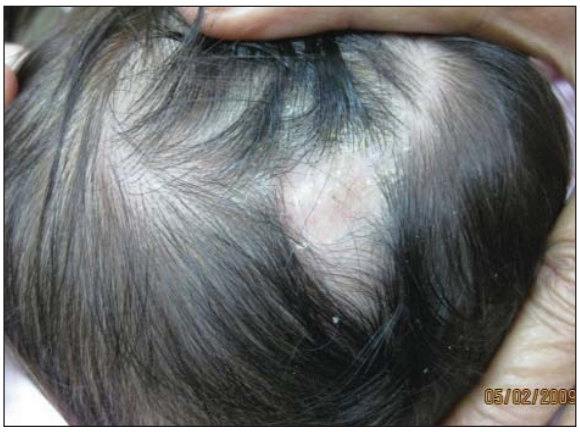
ACC is most often a benign isolated defect, but it can be associated with other physical anomalies or malformation syndromes. Frieden classified them into 9 groups based on the number and presence or absence of other anomalies[1]. Nearly 86 percent belong to the first group with a solitary lesion. We report a case of Aplasia Cutis Congenita secondary to maternal exposure to carbimazole during pregnancy.

Correspondence
Tey KE, *MRCP*
Department of Dermatology
Hospital Sultanah Aminah, Johor Bahru, 80100 Johor
E-mail : ketey08@yahoo.com

Case report

A 2 month old baby girl of non-consanguineous parents was referred to us in 2009 for a hairless patch on the scalp noted at birth. She was delivered full term vaginally. Her mother has thyrotoxicosis since 2006 and was on carbimazole during her first month of pregnancy. There was no similar skin lesion in the family. Examination revealed a 1.5 cm semicircular atrophic parchment-like scar within which there was a total absence of hair (Figure 1).

Figure 1 A semicircular atrophic parchment-like scar with absence of hair on the scalp measuring 1.5 cm in diameter



There were no other organ abnormalities on clinical examination. Radiological examination and ultrasonography of the abdomen revealed no abnormalities. Routine baseline investigations were within normal limits. The parents declined a skin biopsy.

Discussion

ACC is an uncommon disorder presenting at birth. The most common presentation is the solitary lesion on the scalp, as present in our patient.

Frieden classified ACC into 9 groups based on the number and presence or absence of other anomalies[1].

Group 1: This is scalp ACC without multiple anomalies. Nearly 86% of all solitary lesions occur on the scalp. It can be autosomal dominant or sporadic.

Group 2: This is scalp involvement with limb anomalies. Adams-Oliver syndrome is a distinct subtype in which distal limb reduction abnormalities are found in association with solitary midline scalp defects. More than 15 such cases have been reported, usually with an autosomal dominant inheritance pattern and variable genetic expression[2,3]. The scalp lesions tend to be large. The most common limb malformation is hypoplastic or absent distal phalanges. Other anomalies may include cutis marmorata telangiectasia congenita, hemangiomas, cranial arteriovenous malformation, skin tags, supernumerary nipples, and woolly hair.

Group 3: This is scalp ACC with epidermal and sebaceous (organoid) nevi, which also involve the scalp, usually adjacent to the cutis aplasia. Some patients have also had ophthalmic and neurologic findings typical of epidermal nevus syndrome, including seizures, mental retardation, corneal opacities, and eyelid colobomas. Inheritance is sporadic.

Group 4: This is ACC often with a hair collar overlying deeper embryologic malformations. Examples include meningomyelocele, porencephaly, leptomeningeal angiomatosis, cranial stenosis, spinal dysraphism, gastroschisis, and omphalocele. The inheritance pattern in this group varies with the associated underlying condition.

Group 5: This is ACC associated with fetus papyraceous or placental infarct. Extensive truncal and limb ACC in a linear or stellate configuration is associated with the presence of fetus papyraceous. Fetus papyraceous is found at the time of delivery and results from the death of a twin fetus early in the second trimester. The surviving fetus is affected with ACC and is usually otherwise normal.

Group 6: This is ACC associated with simplex, junctional, or dystrophic types of epidermolysis bullosa (EB). Many reports describe ACC, usually occurring on the lower extremities, in patients eventually diagnosed with EB. Initially described as Bart syndrome, this type of presentation represents a variant of dystrophic EB. A subgroup includes the association of pyloric or duodenal atresia, ureteral stenosis, renal abnormalities, craniofacial abnormalities, nail dystrophy, and ACC.

Group 7: This is ACC localized to the extremities without EB. At least 2 families have been reported in which multiple members had extensive ACC on the pretibial lower extremities and the dorsal aspects of the hands and the feet.

Group 8: This is ACC due to teratogens. A few cases of ACC have been linked to intrauterine infection with herpes simplex virus or varicella-zoster virus or to exposure to methimazole in the treatment of maternal thyrotoxicosis during pregnancy[4,5,6,7]. Imperforate anus has been associated with methimazole or carbimazole exposure during gestation.

Group 9: This is ACC associated with malformation syndromes. ACC has been reported as a characteristic in many syndromes and more will be reported. Various syndromes and dysplasias include trisomy 13 (Patau syndrome) with large membranous scalp defects, 4p- (Wolf-Hirschhorn) syndrome with midline scalp defects, Setleis syndrome with bitemporal ACC and abnormal eyelashes, Johanson-Blizzard syndrome with stellate scalp defects, focal dermal hypoplasia (Goltz syndrome), amniotic band disruption complex, oculocerebrocutaneous (Delleman) syndrome, scalp-ear-nipple syndrome (Finlay-Mark syndrome), and 46XY gonadal dysgenesis. Reticulolinear ACC on the face and the neck is a distinctive cutaneous manifestation in several syndromes linked to Xp22.

The clinical description of our patient points to type 8 of Frieden's classification as the mother had exposure to carbimazole during early pregnancy. More than 18 cases of ACC with possible association with maternal exposure to methimazole or carbimazole were reported in the literature[4,5,6,7].

In very few reports are histological details available; histological features vary depending on the depth of aplasia and duration. Ulcers are seen at birth. After healing, the epidermis appears flattened with proliferation of fibroblasts within a connective tissue stroma. Total absence of the epidermal appendages remains a characteristic feature[1]. If the defect is small it can be partially excised and then closed surgically.

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