

the axillae, groin and anogenital region.^[1] The primary pathogenic event seems to be follicular occlusion in apocrine gland-bearing skin.^[1] Despite known predisposing factors, the etiology remains unclear. Though it is a common disease in adults (prevalence 4%) and more frequent in females, it is rare before puberty and after menopause.^[1]

We present an 8-year-old Caucasian girl whose lesions commenced at the age of 6 years as painful nodules in the groins, before any signs of puberty. There was no family history of hidradenitis suppurativa or severe acne. Examination revealed few polyporous comedones, red papules, nodules, and atrophic scars in the inguinal regions [Figure 1]. Axillary and anogenital lesions were absent. She had not attained menarche and the breasts and pubic hair were Tanner stage 2, and body mass index was 23.6 kg/m². Routine laboratory investigations including lipid profile were normal. Fasting glucose, insulin, follicle stimulating hormone, luteinizing hormone, estradiol, testosterone, androstenedione, dehydroepiandrosterone sulfate, sex hormone binding globulin, and prolactin were within normal limits for age. Abdominal and pelvic ultrasonography showed normal adrenal glands and prepubertal uterus and ovaries. Pus cultures were sterile. ELISA for human immunodeficiency virus (HIV) was negative. The mother did not consent for skin biopsy. After the exclusion of bacterial and mycotic infections, a diagnosis of hidradenitis suppurativa was made based on the characteristic clinical presentation. The disease extent was Hurley stage 1. The patient had previously been treated with oral (cephalexin, azithromycin) and topical

Prepubertal onset of hidradenitis suppurativa in a girl: A case report and literature review

Sir,
Hidradenitis suppurativa is a chronic inflammatory disorder characterized by sterile inflamed lesions, folliculitis, abscesses, fibrosis and scarring affecting



Figure 1: Hidradenitis suppurativa: Inflamed nodules, papules and atrophic scars involving the groins

Table 1: Hidradenitis suppurativa in children-review of reported cases

Reference	Sex	Onset	Lesion type	Anatomic site	Weight	Height	Tanner stage	History of associated illness	Hormone analyses	Systemic AB therapy	Isotretinoin	Topical therapy	Outcome
Present case	Female	6 year	Nodules, atrophic scars, polyporous comedones, papulo-pustules	Groins, gluteal area	95 th percentile	95 th percentile	II	Atopic dermatitis	Normal	Cephalexin, azithromycin	0.6 mg/kg	Fusidic acid, gentamicin, clindamycin, chloramphenicol, azelaic acid	Remission
Lewis et al., 1993 ^[3]	Female	6 year 10 month	Swelling, redness, induration, comedone-like lesions	Groins	97 th percentile	50 th percentile	No data	Premature adrenarche	High testosterone, 24h urinary steroid profile-androgen and 17 (OH)-progesterone metabolites excess	No data	No data	Clindamycin	No data
Mengesha et al., 1999 ^[2]	Female	8 year	Nodules	Groins, axillae, suprapubic, anogenital region	No data	No data	I	Acanthosis nigricans	High glucose, insulin and cholesterol	Erythromycin, tetracycline, prednisone, triamcinolone	1 mg/kg/8 month	Clindamycin	Improvement (at 11 year 2 month)
Mengesha et al., 1999 ^[2]	Female	11 year 9 month	Nodule, single/double headed open comedones	Inguinal region	No data	No data	No data	Down syndrome	Normal androgens	Tetracycline, minocycline	No data	No data	No progression (at 14 year 6 month)
Palmer et al., Kneefe, 2001 ^[4]	Female	9 year 3 month	Nodules, open/closed comedones, atrophic scars	Inguinal areas	85 th percentile	97 th percentile	IV	Early puberty	High androstenedione, DHEAS, LH, FSH, estradiol	No data	No data	No data	No data
Felto-Rodriguez et al., 2009 ^[5]	Female	5 year	Papules, nodules	Groins	75 th percentile	70 th percentile	I	No data	Normal androgens	Erythromycin	0.7 mg/kg/5 month	Clindamycin, azelaic acid, botulinum toxin A	Complete remission (at 7 year 11 month)
Prabhu et al., 2012 ^[6]	Male	13 year	Discharging sinus, indurated nodular plaque	Right axilla	24.5 kg	135.5 cm	No data	HIV +	ND	Amoxicillin+ clavulanic acid, prednisolone, zidovudine/laminovudine/nevirapine	No data	Antiseptics	Complete remission, no recurrence (at 16 year)
Randhawa et al., 2013 ^[7]	Female	7 year	Nodules	Groin, axillae, perianal and perineal regions, inner thighs	No data	No data	No data	Precocious puberty	ND	Minocycline, cephalexin, tetracycline, ethinylestradiol/desogestrel, spironolactone, oral contraceptive, finasteride	4 month	Antibiotics, ALAPDT	3 flares in 3 years, treated with oral cephalixin

Contd...

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Randhawa <i>et al.</i> , 2013 ^[7]	Female	14 year	No data	Groin, neck	no data	No data	No data	PCOS	ND	Erythromycin, finasteride, oral contraceptive	6 month	No data	Flares decreased in frequency and severity
Randhawa <i>et al.</i> , 2013 ^[7]	Female	6 year	Nodules	Perianal, inner thighs, axillae	No data	No data	No data	No data	ND	Erythromycin, trimethoprim	No data	Clindamycin, benzoyl peroxide, silver sulfasalazine, adapalene	Remarkable improvement with minimal flares

ND: Not done, SD: Seborrhoeic dermatitis, HIV: Human immunodeficiency virus, PCOS: Polycystic ovary syndrome, DHEAS: Dehydroepiandrosteronesulphate, LH: Luteinizing hormone, FSH: Follicle stimulating hormone, ALA PDT: Aminolevulinic acid



Figure 2: Complete remission after 3 months of therapy, with residual scarring and hyperpigmentation

antibiotics (chloramphenicol, clindamycin, fusidic acid, gentamicin) for 3 weeks with no improvement. In January 2014, oral isotretinoin (0.6 mg/kg/day) and topical 20% azelaic acid cream twice a day were introduced with which marked improvement was noted after 4 weeks, and 2 months later she was in complete remission [Figure 2]. After 3 months, the isotretinoin dose was reduced to 0.4 mg/kg/day. At the last follow up 7 months after the introduction of isotretinoin, there were no signs of recurrence and the dose was further reduced to 0.3 mg/kg. It is planned to continue isotretinoin for a total of 12 months.

Hidradenitis suppurativa usually develops in the second or third decade of life, with a female: male ratio of 2:1 to 5:1.^[1,2] We found only nine previous reports of hidradenitis suppurativa in children,^[2-7] of which eight were girls [Table 1]. Though the average age of onset in adults is 23 years;^[1] in pediatric cases the mean age of onset was 8 years and 9 months (range 5–14 years). The main clinical presentation in pediatric cases were nodules in 7 (77.8%) of 9 children^[2,4-7] and clinical features in prepubertal cases were not different from adults. In adults this condition affects intertriginous apocrine gland-bearing areas; most frequently the genito-femoral region in women.^[1] In children, groins were reported as the most common site involved in 7 (77.8%) patients. Other localizations (axillae,^[2,7] perianal region,^[7] inner thighs, and posterior neck^[7]) were noted only in one HIV-positive boy and two girls, and these were refractory to several treatment modalities [Table 1]. Positive family history was reported in 26% of adults (autosomal-dominant mode

Table 2: Treatment options for hidradenitis suppurativa

Local	Systemic
1% Clindamycin ^{[1,5,7]*}	Antibiotics (clindamycin ^[1] , rifampicin ^[1] , tetracycline ^[1,2,7] , minocycline ^[1,2,7] , dicloxacillin ^[2] , erythromycin ^[5,7] , amoxicillin and clavulanic acid ^[6] , cephalixin, ^[7] trimethoprim ^[7] *)
5% Benzoyl peroxide ^{[1,7]*}	Hormonal therapy (cyproterone acetate ^[1,4,7] , ethinyl estradiol ^[1,4,7] , norgestrel ^[7] , desogestrel ^[7] finasteride ^[1,7] , spironolactone ^[7] *)
0.3% Adapalene ^{[7]*}	Corticosteroids (prednisolone ^[1,6] *)
Silver sulfadiazine ^{[7]*}	Azathioprine ^[1]
15% Azelaic acid ^{[5]*}	Cyclosporine ^[1]
Intralesional corticosteroids (triamcinolone) ^{[1,2]*}	Dapsone ^[1]
Botulinum toxin A ^{[1,5]*}	Methotrexate ^[1]
15% Resorcinol peel ^[1]	Retinoids (isotretinoin, ^[1-3,7] acitretin, ^[1,2] etretinate ^[1,2] *)
Perilesional granulocyte-macrophage colony-stimulating factor ^[1]	Human immunoglobulin ^[1]
Photodynamic therapy ^{[1,7]*}	Zinc gluconate ^[1]
Radiotherapy ^[1]	Biologics (etanercept, efalizumab, infliximab, adalimumab) ^[1]
Cryosurgery ^[1]	Mycophenolate mofetil
Laser (CO ₂ , neodymium-doped yttrium aluminium garnet, pulsed dye) ^[1]	NSAID
Surgical excision ^{[1,2,7]*}	Tacrolimus

*Used in children, NSAID: Nonsteroidal anti-inflammatory drug

of inheritance)^[1] and in 3 (33.3%) children. HLA associations were not demonstrated.^[1,4] In adults, the importance of hormones has not been fully elucidated and hyperandrogenism most likely does not play a role.^[1] Only 3 (33.3%) children had some hormonal abnormalities^[2-4] [Table 1]. Abdomino-pelvic ultrasonography has been performed only in our patient and a girl with premature adrenarche,^[3] and was normal in both cases. The role of bacteria is unclear; as secondary colonizers, they might exacerbate the condition.^[1] Among children, Gram-positive bacteria were found in 3 (33.3%) patients.^[2,5,6] Obesity is strongly associated with the disease in adults,^[1] different from children, where it has been reported only in one girl.^[3] Despite multiple treatment options [Table 2], no single uniformly effective therapy has been established.^[1] Early disease is often treated with antibiotics. In children, the most commonly used oral antibiotic was erythromycin in 4 (44.4%) cases. As the second option, isotretinoin has been tried in 4 (44.4%) cases (0.7–1 mg/kg), for 4–8 months. In 2 (22.2%) children, surgical excision was undertaken.^[2,7] Other treatment modalities (botulinum toxin A, finasteride)^[5,7] have been tried in children, but the real efficacy is difficult to estimate since none of these was used as monotherapy. Only one child has been treated with topical 15% azelaic acid cream.^[5] According to the outcomes of reported cases of prepubertal onset [Table 1], the prognosis might be better than in adults, but the number of cases is too few to make a definitive comment on this.

Although rare in prepubertal children, hidradenitis suppurativa should be considered in the differential diagnosis of furunculosis-like inguinal/axillary lesions, combination of oral isotretinoin and topical azelaic acid cream may be a useful treatment option in children.

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