Childhood Rosacea: A Review and Case Report


Charlotte Duch Lynggaard

Charlotte Duch Lynggaard, Pernille Theil and Gregor Borut Ernst Jemec
Department of Dermatology, Faculty of Health Sciences, University of Copenhagen, Roskilde Hospital, DK-4000 Roskilde, Denmark. E-mail: gbj@regionsjaelland.dk

Rosacea on children has to be better covered in the literature. The authors have searched the literature and found very few papers. In this article they describe this disease and also show a case of their own.

Rosacea is a well-known disease among adults. Rosacea in children, however, is likely to be under-reported because of the absence of validated diagnostic criteria in children and its similarity to other erythematous facial disorders.

Rosacea is a condition of vasomotor instability characterized by a facial erythema most notable in the central convex areas of the face and by remission and exacerbations (1, 2). Several clinical entities within the diagnosis have been described in adults: erythematoteleangiectatic, papulopustular, phymatous and ocular (3). Rosacea is a common chronic dermatological condition in adults. It has been estimated that approximately 10% of the adult population in Sweden have the disease (4). It is generally first diagnosed in the third and fourth decades of life and is often seen in fair-skinned individuals; and only rarely described in children (1). It has been suggested that rosacea may begin in childhood as common facial flushing, most often as a response to stress, hot food or other stimuli. Similarly, phymatous forms have not been described in children, possibly indicating that a certain period of time is necessary for development of this type of rosacea (5). It is, however, not a disease for which a pathognomonic test exists, and the diagnosis therefore relies on the recognition of a set of clinical signs. Only a few cases of childhood rosacea have been described (1, 2, 5–9). The aim of this case report and review of the literature is to draw attention to rosacea among children.

Case report

A 12-year-old pre-pubertal Caucasian girl with type-1 diabetes had a 2-year history of a red, itching, infiltrated erythema on both cheeks (Fig. 1). There was no seasonal variation, but the condition became worse in hot weather and with hot drinks. It was first treated by a local dermatologist with topical metronidazole 1% (Rozex© cream, Galderma, Copenhagen, Denmark) without sufficient effect, and the patient was referred to the Department of Dermatology at Roskilde Hospital on suspicion of rosacea or lupus erythematosus 2 years after onset of symptoms. The girl had not been treated with topical corticosteroids at any time. The mother had an established diagnosis of rosacea, and the father had Machado-Joseph disease (Spinocerebellar ataxia type 3). On examination a slightly infiltrated, red, scaly exanthema was seen affecting the convex areas of the face, most strikingly involving convex areas such as the ridge of the nose and the cheeks. Papules and a few pustules were found on both cheeks. No telangiectasia, comedones, folliculitis or scarring was seen. Blood samples for antinuclear antibodies, anti-neutrophil cytoplasmic antibodies, anti-DNA-antibodies , Sjögren syndrome A-antibodies, Sjögrens syndrome B-antibodies and epithelial membrane antigen were normal. A biopsy was taken to rule out lupus erythematosus. Histologically a lymphohistiocytic infiltrate was found to surround hair follicles containing demodex and *Pityrosporum ovale*. No signs of lupus erythematosus were found. The clinical and histological picture was fully compatible with a diagnosis of papulopustular rosacea. The girl was initially treated with erythromycin 250 mg daily with some efficacy. After a month topical clindamycin and benzoyl peroxide (Clindoxyl®, Leo Pharma, Ballerup, Denmark) gel was added with a good result. The girl was treated for a total of 4 months with topical clindamycin with benzoyl peroxide and systemic erythromycin for 5 months, at which time no further signs of rosacea were seen.The patient was examined

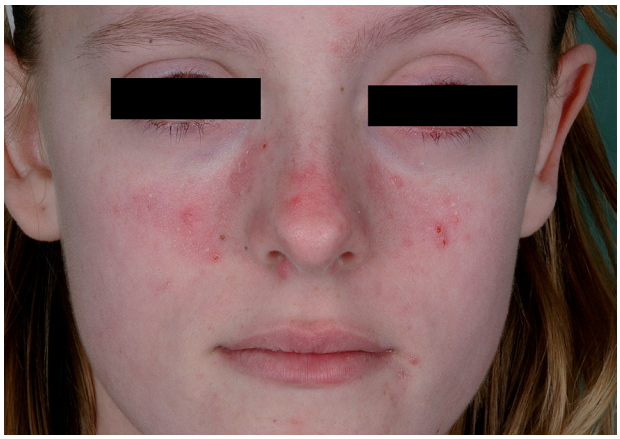
Fig. 1. A 12-year-old girl with rosacea.

by a paediatric ophthalmologist who did not find any eye involvement. However the girl had a history of styes for several years before the onset of the skin disease. At a 12-month follow-up the patient had almost no signs of rosacea. The girl occasionally had problems with flushing, but had no papules or pustules and no signs of acne vulgaris.

Discussion

Rosacea is a common chronic disease in adults. The diagnosis of rosacea in adults relies on one or more of the following primary features: flushing, non-transient erythema, papules, or telangiectasia. Although in clinical reality the diagnosis rarely poses severe diagnostic problems, these criteria may appear imprecise, and diagnostic criteria in children are missing. Therefore childhood rosacea is most probably under-reported (1). Chamaillard et al. (5) found that, despite the absence of validated diagnostic criteria in children, the clinical features of childhood rosacea are most similar to those found in adults. They clearly identified children with facial flushing, persistent papulopustular eruptions and/or telangiectasia on the convex areas of the face and the most frequent form found was papulopustular, as in the case presented here.

The aetiology of rosacea is unknown. Genetics, environmental, vascular, inflammatory factors and microorganisms such as *Demodex folliculorum* and *Helicobacter pylori* have all been considered (5). Exacerbating factors, such as emotions, environmental conditions, spicy food, hot food and beverages and vasodilators, are known to have a role in predisposed individuals (1). Genetics play an uncertain role in the development of blushing and ultimately rosacea (1). In one study 20% of children with rosacea were found to have a family history of rosacea, but this number is likely to be underestimated because only one parent of each patient was examined and half of the parents clinically diagnosed with rosacea reported no familial involvement (5). In our case the mother had already been diagnosed with rosacea.

The clinical manifestations of childhood rosacea are divided into three stages. The first stage consists of flushing in response to certain stimuli, such as emotions, hot weather and spicy foods. The episodes of erythema are recurring and last longer than normal physiological flushing (1). The second intermediate, stage of rosacea consists of pustules on the background of erythema with telangiectasias confined to the face. The third, or late, stage involves coarse skin, inflammatory nodules or gross enlargement facial features (1). We believe our patient had intermediate rosacea as she displayed a combination of consistent flushing, acuminated papules and small pustules and a family history of rosacea. In 2004, Lacz et al. (1) proposed that paediatric rosacea in the intermediate or late stage should be considered when a healthy child has acuminate papules of the face, especially if there is also flushing, telangiectasias or a family history of rosacea.

There is no specific histology unique to rosacea (1). Because of the unusual occurrence of rosacea in children, other papulopustular disorders, especially with telangiectasia, must be considered. The most frequent form with papulopustular eruptions can be difficult to differentiate from acne vulgaris; however, comedones are lacking in rosacea, and persistent flushing and telangiectasia are absent in acne. The earliest stage of rosacea with facial blushing can be difficult to distinguish from flushing due to emotions, such as anger or embarrassment, or exercise (1). Flushing in the first stage of rosacea is distinguished by its exaggeration and long duration.

The intermediate stage of paediatric rosacea may be confused with other papulopustular disorders such as acne vulgaris, peroral dermatitis and lupus erythematous (1). Distribution of the lesions most often allows clinical differentiation from perioral dermatitis, while histology and associated serology often clearly identifies systemic lupus erythematous.

In 1972, Savin et al. (2) described, in one of the first articles on possible rosacea in children, the probable relationship between potent topical corticosteroids and rosacea-like eruptions. Prior exposure to topical corticosteroids was found in 8/11 patients. Today steroid-induced rosacea has been termed iatrosacea.

In 2008, Chamaillard et al. (5) published a paper on 20 young patients diagnosed with cutaneous and/or ocular rosacea in the period 1 January 1996 to 31 December 2005. They found that 11/20 patients had both ocular and cutaneous rosacea, 6/20 had isolated cutaneous involvement and 3/20 had ocular involvement. In 11 of the patients ocular involvement had preceded the skin eruption. Ocular manifestations of rosacea are non-specific and can involve the eyelids, conjunctiva and cornea. These manifestations include blepharoconjunctivitis, episcleritis, keratitis, meibomianitis, chalazia, hordeola, and hyperaemic conjunctivae with keratitis and meibomian gland inflammation as the most common (1, 9). Because of the possible severity of ocular complications every child diagnosed with the intermediate stage of rosacea with papules and pustules should undergo an eye examination in order to rule out ocular manifestations (9, 10).

Epidemiological studies suggest that facial and ocular rosacea form a continuum (10). Bamford et al. (10) made a retrospective study and examined the relationship between childhood stye and adult rosacea and found that persons with a history of having had a stye during childhood were at a significantly higher risk of developing rosacea later in life.

References

1. Lacz NL, Schwartz RA. Rosacea in the pediatric population. Cutis 2004; 74: 99–103.
2. Savin J, Alexander S, Marks R. A rosacea-like eruption of children. Br J Dermatol 1972; 82: 425–428.
3. Crawford GH, Pelle MT, James WD. Rosacea: I. Etiology, pathogenesis, and subtype classification. J Am Acad Dermatol 2004; 51: 327–341; quiz 342–344.
4. Berg M, Lidén S, An epidemiological study of rosacea. Acta Derm Venereol 1989; 69: 419–423.
5. Chamaillard M, Mortemousque B, Boralevi F, Marques da Costa C, Aitali F, Taieb A, Leauté-Labreéze C. Cutaneous and ocular signs of childhood rosacea. Arch Dermatol 2008; 144: 167–171.
6. Weston WL, Morelli JG. Steroid rosacea in prepubertal children. Arch Pediar Adolesc Med 2000; 154: 62–64.
7. Erzurum SA, Feder RS, Greenwald MJ. Acne rosacea with keratitis in childhood. Arch Ophthalmol 1993; 111: 228–230.
8. Drolet B, Paller AS. Childhood rosacea. Pediatr Dermotol 1992; 9: 22–26.
9. Buechner SA. Rosacea: an update. Dermatology 2005; 210: 100–108.
10. Bamford JTM , Gessert CE , Renier CM, Jackson MM, Laabs SB, Dahl MV, et al. Childhood stye and adult rosacea. J Am Acad Dermatol 2006; 55: 951–955.