Current Best Evidence

Hsu CK, Hsu MM, Lee JY. Demodicosis: A clinicopathological study. J Am Acad Dermatol 2009; 60: 453-62.

All cutaneous diseases caused by Demodex mites are clubbed under the term demodicosis or demodicidosis. Demodex mites have been thought to cause rosacea-like demodicosis, demodicosis gravis (granulomatous rosacea-like demodicosis), pityriasis folliculorum, perioral dermatitis like rash, pustular folliculitis, demodex abscesses and blepharitis.

All cases with tentative diagnosis of demodicosis, presented from July 1990 to June 2007 were reviewed. Fifteen cases of demodicosis in which diagnosis was confirmed on the basis of clinicopathological findings and therapeutic responses were selected for evaluation. Patients with more than five mites, either in one follicle or in one low-power field by scraping or in one-cm^2 area by standardized skin surface biopsy (SSSB), were considered to have significant infestation.

There were four male patients and 11 female; age ranged from one to 64 years with mean age of 38.7 years. Disease duration ranged from two months to five years. There were four kinds of presentations. Eight patients had acne rosacea-like rash, five manifested as perioral dermatitis- like rash, one presented with granulomatous rosacea-like eruption and one had pityriasis folliculorum with numerous tiny follicular plugs and scales with a faint background erythema.

Skin biopsy was performed in seven patients. Histopathology was characterized by: (1) dense perivascular and perifollicular lymphohistiocytic infiltrates, often with abundant neutrophils and occasionally with multinucleated histiocytes; (2) excessive demodex mites in follicular infundibula; and (3) infundibular pustules containing mites or mites in perifollicular inflammatory infiltrate.

Disease course was recurrent or chronic persistent and resolved completely after a short course of treatment that included topical metronidazole gel 0.75% (eight patients), topical gamma benzene hexachloride cream one per cent (three patients) and crotamiton 10% (two patients), and oral metronidazole (250 mg three times per day) for one to three weeks (10 patients).

Comment: Demodicosis is still an ill defined entity. This disease entity has presentations resembling various other disorders and is therefore commonly misdiagnosed. In the study, out of 15 patients, demodicosis was diagnosed or suggested at presentation in nine patients. The mite is present as commensal in many people but only a small number of them develop skin lesions. It may be that these people are genetically predisposed to infestation as the mite is present in excessive numbers and penetrates into the dermis in this group of individuals.

The various clinical presentations produced by the mite are not explained by hypersensitivity or allergic reaction to substances of the pathogenic mite. Hence demodicosis is the preferred term than demodicidosis as suffix "id" is analogous to "tuberculid" or "bacterid," and does not reflect the current view on the pathogenesis of this dermatosis.

The study shows demodicosis as more common in female and affecting people of varied age group. The youngest patient was a one-year-old. There is large variation in the clinical manifestation and histopathology of demodicosis which depends on the degree of demodex infestation, duration of the disease, host's age and general health, and evolutional stage of individual lesions. The most common presentation was acne-rosacea like rash followed by perioral dermatitis like rash. Demodicosis should be considered in the differential diagnosis of recurrent or recalcitrant facial eruptions, including rosacea-like, granulomatous rosacea-like, and perioral dermatitis-like dermatitis.

Demodicosis responds to systemic and/or topical metronidazole therapy in most patients; topical

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crotamiton or gamma benzene hexachloride can also be tried.

Roh MR, Chung KY. Infraorbital Dark Circles: Definition, Causes, and Treatment Options. Dermatol Surg 2009; 35:1163-1171.

Until now there have been a few investigations into the cause and little research into the potential treatment of infraorbital dark circles. This article focuses on possible causes of infraorbital dark circles and treatment options. Possible causative factors of the dark circles include excessive pigmentation; thin, translucent lower eyelid skin overlying the orbicularis oculi muscle; and shadowing due to skin laxity and tear trough.

Excessive pigmentation under the eyes could be due to dermal melanocytosis, post inflammatory hyper pigmentation or familial. Dermal melanocytosis is due to congenital causes like nevus of Ota and environmental causes like excessive sun exposure and drug ingestion. Post inflammatory hyper pigmentation could be secondary to atopic or allergic contact dermatitis. It presents as a band of brownish skin approximating the shape of the underlying inferior orbital rim. Diagnosis is ascertained by gently stretching the skin manually and the pigmented skin shows no change.

A thin translucent lower eyelid skin overlying the orbicularis oculi muscle is another common cause of infraorbital dark circles. It involves the entire lower eyelids, with a violaceous appearance more prominent in the inner aspect of the lower eyelids. Pigmentation and violaceous appearance is due to prominent vascular plexus or vasculature contained within the muscle covered by a thin layer of skin. Diagnosis is confirmed when stretching of lower eyelid skin results in deepening of the violaceous color.

Tear trough together with skin laxity due to photo aging can cause infraorbital dark circles. Skin laxity imparts a shadowing appearance on the lower eyelids. The tear trough is a depression over the medial side of the inferior orbital rim which confers hollowness to the orbital rim area.

There are no evidence-based studies for treatment of infraorbital dark circles. Infraorbital dark circles due to excessive pigmentation can be treated with depigmenting agents, chemical peels and pigment lasers. Depigmenting agents have to be continued for several months before cosmetic benefits are obtained. Treatment with hydroquinone should be continued for at least three months and up to one year. Topical retinoic acid has to be applied for a still longer time.

Other compounds used as depigmenting agents include azelaic acid, steroids, kojic acid and pidobezone. Peels can be superficial, medium, or deep. Alpha-hydroxy acids and TCA Peels are most commonly done peels. Pigment lasers include the Q-switched ruby laser, Q-switched alexandrite laser, and neodymium-doped yttrium aluminum garnet laser. Based on the studies done till now, it has been concluded that the dermal pigment can be successfully removed with lasers using the concept of selective photothermolysis. Safety should be emphasized while working near eye.

Skin laxity and tear trough can be treated with ablative and nonablative lasers and surgical methods. Untoward side effects including prolonged erythema, pigmentary alterations, infections, and rarely scarring can occur with ablative laser treatment; nonablative laser systems are less invasive methods to treat photo-induced rhytides effectively. However, side effects are less and post procedure recovery period is short compared to ablative lasers.

Infraorbital dark circles due to thin and translucent lower eyelid skin can be treated using autologous fat transplantation or soft tissue fillers. The author conducted a pilot study evaluating the efficacy of autologous fat transplantation in this group of patients. Ten patients underwent an average of 1.6 autologous fat transplantations and patients showed average of 78% improvement. Soft-tissue fillers can also be used but fat gives best results with almost nil chances of reactions.

Comment: Infraorbital dark circles are a significant cosmetic problem in some individuals as it makes one look tired, sad or hung over. It affects individuals with a wide range of age, both sexes, all races and worsens with the aging process. This article is a comprehensive elaboration of etiology based directed therapy of infraorbital dark circles. In the busy clinics, most dermatologists end up treating infraorbital dark circles with depigmenting agents mainly with poor or partial response to therapy. The author emphasizes that there are various factors that cause infraorbital dark circles, and provides simple tests to pinpoint the cause. In every individual one should try to identify the cause

and initiate appropriate treatment accordingly. The brown and blue-gray color caused by dermal melanin deposition, bluish color due to visible dermal capillary network, and shadowing secondary to skin laxity and bulging contour of the lower eyelid need separate treatment.

If infraorbital dark circles are mainly due to excessive pigmentation, the dermal melanin pigment should be targeted with topical bleaching agents, chemical peels or lasers. If skin laxity is prominent, modalities to improve the laxity are recommended. Autologous fat transplantation is an innovative option of treatment in patients with thin skin and prominent vascularity.

Rose C, Armbruster FP, Ruppert J, Igl BW, Zillikens D, Shimanovich I. Auto antibodies against epidermal transglutaminase are a sensitive diagnostic marker in patients with dermatitis herpetiformis on a normal or gluten-free diet. J Am Acad Dermatol 2009;61:39-43.

Dermatitis herpetiformis (DH) is an intensely pruritic sub epidermal blistering disorder considered to be a cutaneous manifestation of gluten-sensitive enteropathy (GSE). DH and GSE patients have circulating IgA antibodies targeting the tissue transglutaminase (tTG).

DH patients produce two kinds of IgA auto-antibodies against epidermal transglutaminase (eTG). One population of antibodies binds exclusively to eTG while the other antibodies bind non-specifically to both eTG and tTG. The author evaluated the prevalence of IgA antibodies to eTG and tTG in a large cohort of patients with DH.

Serum samples from 52 cases of DH were collected. Among the total cases 38 had not started therapy while 14 were on gluten-free diet (GFD) for more than two years. Fourteen patients on GFD were further subdivided into two subgroups of seven patients each. One subgroup was controlled on GFD alone while the other subgroup required additional dapsone therapy.

Serum samples from 52 patients were studied for IgA reactivity against eTG and tTG by ELISA. IgA antibodies to eTG were detected in 95% and those to tTG in 79% DH cases on normal diet. Only one patient had no reactivity against either TG and 18% contained antibodies to eTG but not to tTG. Differences in eTG- and tTG-specific antibody levels between patients with and without GSE were not significant. Seven patients of DH controlled on a GFD had no reactivity against eTG or tTG. Another seven patients showed symptoms on gluten free diet had elevated antibodies to eTG.

Comment: Dermatitis herpetiformis is a sub epidermal blistering disorder and the clinical picture may be difficult to differentiate from other sub epidermal bullous dermatosis. Direct immunofluorescence microscopy of perilesional skin is the gold standard for the definitive diagnosis of DH. However, there are many limitations of this technique - it is an invasive procedure, sensitivity is not very high, tissue preparation, staining and reporting takes time.

Epidermal transglutaminase is now thought to be a principal auto antigen in DH patients. The study demonstrates that eTG-specific antibodies are present in 95% of DH cases on normal diet and hence has high sensitivity for detection of new DH cases. These antibodies become non detectable in patients in remission when strictly adhering to gluten free diet, and therefore can be used for monitoring patient adherence to diet. Antibodies to tTG were found in 79% cases of DH on normal diet.

Previous studies detecting antibodies to eTG and tTG had conflicting results. Sensitivity of anti-eTG antibodies assay varied from 45 to 92% in different studies.

This study demonstrates that the detection of IgA antibodies to eTG is less invasive and less expensive but highly sensitive screening test for DH detection and is superior to the tTG assay. In view of the older studies with conflicting results we need to test anti-eTG antibodies in still larger number of DH patients to substantiate the findings of the present study.

Smith ES, Hallman JR, DeLuca AM, Goldenberg G, Jorizzo JL, Sangueza OP. Dermatomyositis: A Clinicopathological Study of 40 Patients. Am J Dermatopathol 2009;31: 61-67.

Dermatomyositis (DM) is an inflammatory myopathy with characteristic dermatologic eruptions. In some cases the presentation is atypical and the differential diagnosis may include systemic lupus erythematosus (SLE), atopic or contact dermatitis, psoriasis, and cutaneous T-cell lymphoma. Definite diagnosis requires histopathologic examination of appropriate

skin lesions, along with clinical and laboratory testing for myopathy. Patients who do not have evident myopathy at presentation, diagnosis has to be established on the basis of skin lesions alone. This study is a comprehensive evaluation of histological changes seen in cutaneous lesions from patients with DM and to determine if they could be distinguished from SLE by light microscopic examination.

A total of 45 biopsy specimens from 40 patients with DM were retrospectively reviewed at the Wake Forest University School of Medicine. Eight histological features including stratum corneum compactness, epidermal atrophy, basement membrane thickening, DEJ—interface/vacuolar inflammation, perivascular inflammation, dermal mucin, telangiectasia and follicular plugging observed by light microscopy were graded from 0-3 in a systematic fashion. Ten biopsy specimens from acute cutaneous LE patients and 10 from DM patients who were best matched with LE patients in terms of other factors including age, anatomic location of biopsy were randomized.

The diagnoses were blinded before histological grading. A diagnosis of acute SLE or DM was then given based on the histological grading and then this result was compared with the actual diagnosis. There were 37 skin biopsy specimens from DM patients and seven from amyopathic DM patients. The primary lesions were poikiloderma in 28 and Gottron's papules in 13 patients. The frequency of histological changes on hematoxylin-eosin staining was as follows: perivascular inflammation (93%), vacuolar changes at the dermal–epidermal junction (80%), increased dermal mucin (61%), telangiectasias (53%), compact/hyperkeratotic stratum corneal layer (53%), epidermal atrophy (32%), follicular plugging (31%), and basement membrane thickening (16%). On special staining, increased dermal mucin was seen in 97% of biopsy specimens and basement membrane thickening in 61%. The histological changes of amyopathic DM specimens and DM specimens were similar. Also the histological grading of DM biopsy specimens was nearly identical to specimens from patients with SLE except for mucin deposition. Moderate-to-marked mucin deposition was seen in 75% of DM biopsy specimens compared with 38% of SLE specimens.

Comparison of cutaneous histopathologic changes in SLE and DM biopsy specimens demonstrated that they are almost identical and cannot reliably be distinguished by light microscopy alone.

Comment: DM and SLE have characteristic dermatologic eruptions but in some cases it may be difficult to distinguish between these two clinically. The author has evaluated 45 biopsy specimens from 40 patients with DM. Perivascular inflammation was the most common finding but it is non specific. Other common histological findings included vacuolar changes at the dermal–epidermal junction, increased dermal mucin, telangiectasias and compact/hyperkeratotic stratum corneal layer.

Comparing the histological findings from acute LE biopsy specimens, it was found that the two can be indistinguishable histopathologically. Hence the histopathological findings can support clinical diagnosis but cannot rule out the other possibility. Thus, communication between the dermatopathologist and clinician may improve the diagnostic yield in patients with either disease.

Bingham LG, Noble JW, Davis MD. Wet dressings used with topical corticosteroids for pruritic dermatoses: A retrospective study. J Am Acad Dermatol 2009; 60: 792-800.

There are numerous dermatological diseases like dermatitis, erythroderma, psoriasis, and cutaneous T-cell lymphoma which cause severe pruritis that disrupts sleep and daily activities of patients.

This is a retrospective study to find the efficacy of wet dressing treatment in an adult population with various pruritic dermatoses treated at Mayo Clinic between January 2004 and August 2007. Medical records of the patients who had pruritus at admission and subsequently received wet therapy were reviewed to ascertain the degree of improvement in pruritus on day one after admission and again at dismissal. Improvement was graded as mild (greater than 25% improved), moderate (greater than 50% improved), marked (greater than 75% improved), improved (but not quantifiable), no improvement, or worse.

There were 331 patients; 391 admissions with pruritus identified on admission and treated with wet dressings. Patients' pruritic symptoms were recalcitrant to therapy and were severe enough to convince them about the need for inpatient hospitalization for its management. There were 54 unique diagnoses treated and the five most common were dermatitis (unspecified), atopic dermatitis, erythroderma, psoriasis, and cutaneous T-cell lymphoma.

Data for improvement after one day of treatment with wet dressings were available for 156 patients. Of 156 patients, 94% had improvement reported at one day and six per cent had no improvement. The degree of improvement was mild improvement in 15%, moderate in nine per cent, marked in 42 and without further specification in 28%.

Data on improvement at dismissal was available for 357 of 391 admissions. Of these 357, 98% showed improvement and two per cent showed no improvement at dismissal. Of the 98%, 61% showed marked improvement while mild and moderate improvement were seen in seven and 13% respectively. This intervention was the most frequently used method for control of pruritus in inpatients at mayo clinic.

Comment: There are three main types of wet dressing: (1) open wet dressing, (2) closed wet dressing, and (3) occlusive wet dressing. The open or closed forms of wet dressings are used at Mayo Clinic.

Wet dressing technique has been in use for decades but medical literature describes its use for atopic dermatitis patients mainly while there is little evidence of its utility in the control of symptoms in other pruritic dermatologic diseases.

This retrospective analysis of the data at Mayo Clinic revealed that wet dressings improve pruritic symptoms in patients of varied dermatoses recalcitrant to other therapies. The improvement started from the first day in almost all patients and the response was sustained till the dismissal of the patient from the hospital. Additional advantage noted with wet dressings was that it enhanced the effects of corticosteroids and other topical medications.

Most of the previous studies were done on children with atopic dermatitis and this study shows that the technique is equally effective in adults. Various mechanisms proposed to explain the efficacy of wet dressings include enhanced topical drug penetration, hydration of the stratum corneum, cooling of skin, vasoconstriction of skin blood vessels, removal of scales and exudates, reduction in local bacterial counts, and a physical barrier against scratching.

Problems with wet dressing are- (a) it is cumbersome,(b) it has potential complications and (c) it limits the activity of the patient.

Potential complications are infections like folliculitis, impetigo, cellulitis, pseudomonas and herpetic infections and perioral dermatitis, conjunctivitis, skin atrophy, striae, and hypothalamic-pituitary-adrenal axis suppression. Rebound dermatosis occurs rarely.

Wet dressings are highly efficacious in the relief of pruritus associated with various dermatoses in adults as well as children. They have a few drawbacks and are an underused resource for management of pruritic dermatoses.

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