GRANULOMA ANNULARE

(Review of Literature with a case report)

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Granuloma annulare (GA) is comparatively a rare disease in India. Though a relatively plentiful case reports of GA, typical as well as atypical varieties, have been recorded from different corners of the world [9-11, 13, 18, 21, 23, 24.] yet the disease is practically meagrely reported in India, (Behl et al[1] ; Sharma et al[19]). The extreme paucity of case reports in Indian literature and appreciable response to local corticosteroids under occlusive polythene dressing, of annular as well as discrete papular lesions and punch biopsy of nodular lesions, has prompted documentation of the case.

This dermatosis was first introduced under the term " Ringed Eruption " by Colcott Fox[6]. Radcliffe Crocker[4], coined the designation, granuloma annulare. Granuloma annulare is a benign granulomatous disorder of dermis or subcutis, characterised clinically by papules and nodules grouped in a ring or circinate arrangement. The annular plaque type of lesions predominate but papular and nodular forms are encountered, not uncommonly. The lesions predominate on arms, hands, also seen on the feet or legs and they may be found on the glabrous skin including scalp, neck and even genitalia.

Many atypical forms have also been described, Granuloma annulare giganticum (Leinbrock [8]), ulcerative and tuberculoid granulomatous form (Civatte [3]),Disseminated papular variety (Tolmach [23]), Subcutaneous nodular form (Rubin et al [17]), erythematous form (Selmanowitz et al [18]), and Generalised Granuloma annulare (Stankler et al [21] and Miller [11]).

In the literature, this entity has been confounded with Erythema elevatum diutinum (EED) because annular lesions may be present in the latter condition. There still is confusion between GA and Necrobiosis lipoidica with and without diabetes. These last three conditions are palisading granulomas in contrast to EED which is a hypersensitivity angitis or vasculitis (Montgommery [12]). The large nodular forms must be differentiated from rheumatic and rheumatoid nodules. The diagnosis of disseminated papular forms and Generalised Granuloma annulare must be reached by evclusion of Lichen planus, Sarcoidosis, Tuberculosis cutis and Lichen myxoedematosus.

Case Report:

A female, 40 years old, presented herself with circinate lesions, discrete papular lesions on the back of the hands (Fig. 1) and nodular lesions near the elbows (Fig. 2). The eruption was almost restricted to the exposed sites suggesting from the pattern, the influence of sunlight. About seven years ago the lesions started appearing on the right hand; subsequently, six months later on left hand, and two years afterwards, both elbows were affected. Evolution of the lesion was that initial lesion on the hands was a firm papule

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which gradually underwent central involution and centrifugal extension to form a circinate ring, with its border beaded on inspection as well as on palpation. More papules, discrete, appeared in the vicinity of the circinate plaques. In addition, nodular lesions appeared near the elbows which gradually enlarged in size only. The eruption was moderately pruritic. One nodule of the right elbow was excised by her family surgeon, about 4 years ago, without any recurrence at that site. No history of any drug ingestion prior to the onset of the eruption, other than occasional aspirin, penicillin and sulphonamides for minor ailments. The patient was in good health, unaffected by Arthritis, Rheumatic fever, Diabetes or any other systemic illness. No history of trauma at the involved site in the form of penetration of any extrinsic matter or any insect bite. No evidence of Tuberculosis clinically or on investigations. Also there was no clinical evidence favouring malignancy anywhere. Her grandfather was diabetic and her mother died of Carcinoma Cervix about 15 years ago.

General physical examination and systemic examination revealed no abnormality.

Local Cutaneous Examination :

Symmetrical eruption on the dorsa of hands, comprised of circinate plaques involuted in the centre with indurated margines showing plane papules, flesh coloured, becoming confluent with each other forming a continuous elevated rim. Also, discrete papules, with no central delling were present in the vicinity of the circinate lesions (Fig. 1). In addition, firm nodules of pea sized, were present on the elbows, two on right side and one only on the left side (Fig. 2). Mucosae were not involved. There was no scaling or crusting over the lesions. There was no source of focal sepsis, obviously, anywhere.

Laboratory Investigations :

Haemoglobin	—12 Gms. %
Total Leucocyte count	—9600/C.C.
Differential Leucocyte count	—Polymorphs 55% Lymphocytes 43% Eosinophils 2% Monocytes-Nil
Urine (Complete Examination)	—N.A.D.
Urine for porphyrins	—Negative
Stools for Ova and Cysts	—N.A.D.
X-Ray Chest	—N.A.D.
Blood Sedimentation rate	—16 m.m. (1st hrs. Westergren)
Mantoux test (In dilutions of (1 : 10,000 & 1 : 1000)	—Negative
V.D.R.L. and Kahn Test	—Negative
Serum Proteins	—Total 5 Gms. % Differential (Albumin 3.6 gms. % Globulin 1.4 gm. %)
Fasting Blood Sugar	—116 mg. %
Post Prandial Blood Sugar (2 hours after meals)	—145 mg. %
Blood Urea	—25 mg. %
Blood Cholesterol	—180 mg. %

Skin Biopsy (Histopathological Examination):

Epidermis is normal. In the upper part of the dermis, there are several abnormal foci (Fig. 3), each focus shows degeneration (necrobiosis) of collagen in the centre, surmounted by histiocytes, epithelioidcells, a few lymphocytes, and fibroblasts in a palisade arrangement (Fig. 4).

Discussion:

To the best of our knowledge, only a few cases of GA have been reported from India (Behl et al[1]; Sharma et al[19]). The explanation of this rarity cannot be readily understood Probably the cases may be misdiagonsed clinically, and even histopathologically as EED or Necrobiosis lipoidica diabeticorum, or rheumatoid nodules.

Papular lesions in GA associated with typical annular or circinate plaques have been previously reported by many workers (Prunty & Montgommery[13]; Vissian[25]; Miller[11] and Mandel[10]) but our case had in addition to circinate and discrete papular lesions, nodular lesions as well, and to our knowledge the association of all the three types of lesions (annular or circinate, papular and nodular) in a single case has scarcely been reported.

Etiology is obscure. Older concepts of tubercular toxins as a causative factor is no longer tenable (Degos[5]). Nor there is any convincing evidence in support of a current hypothesis of it being a special reaction to variety of infective or toxic agents determined by some unknown constitutional factors. Latent diabetes is present in about 1/3 of non-diabetic patients with GA (Rhodes et al[14]), which suggest that the underlying lesions may be a vascular lesion of the diabetic state, but we still are ignorant of the mechanism provoking the crops of nodules. GA following sunburn has been reported (Tolmach[23]). Its common sites suggest the role of trauma. The trauma of bites (Major Donald[9]) might initiate this reaction pattern. The case in the present series had no evidence of trauma of any kind. Eosinophilia in a few percentage of cases suggests an allergic reaction to the insect as another possibility (Major Donald[9]). There was no eosinophilia in the present case, hence precluding the possibility of an allergic mechanism. Rarely two members of a family may be affected (Rook et al[15]; Spitzer[20] and Rubin et al[17]). No possible etiological factor could be established in our case except the possible influence of sunlight due to the eruptions being restricted to the exposed sites, which has also been stressed by Tolmach[23] and Selmanowitz[18].

Granuloma annulare has been the subject of numerous therapeutic approaches. Local remedies have included Radiation, CO_2 snow, Frigiderm (dichloro tetrafluoro ethane), Electrocoagulation and Electrolysis, Systemic treatment has comprised of heavy metals (Bismuth, Gold and Arsenic), Calciferol, Sulphonamides, Penicillin and measles immune serum. Massive dosage of Vit. E and Pantothenic acid derivatives (Welsch[28]) and Chloroquin (Stritzler[22]; Mandel[10]) have been recommended. The intralesional steroids has seemed to be effective but Kerner and Schiff[7], have reported equally good results with Normal Saline and Xylocaine, thus reducing the supremacy of intralesional steroids. Nor is there ample evidence approving X-Ray Therapy (Rook[16]). Stronger steroid preparations applied under occlusive dressing with polythene or Fluorandrenolone tape (Berke[2]) have yielded commendable results in many patients thus avoiding the risk of atrophy, of intralesional steroid. Despite claims to the contrary, by controlled studies of Wells[27], Trauma of punch biopsy especially of the Nodular lesions has again been recommendatory (Berke[2]; Watson[26] and Zimmerman[29]). However, we treated our case satisfactorily

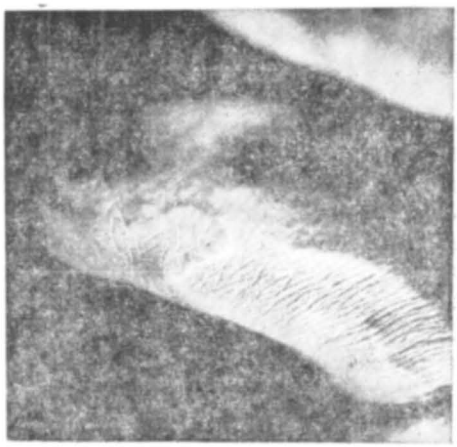

Fig. 1

Showing annular discrete papular lesion

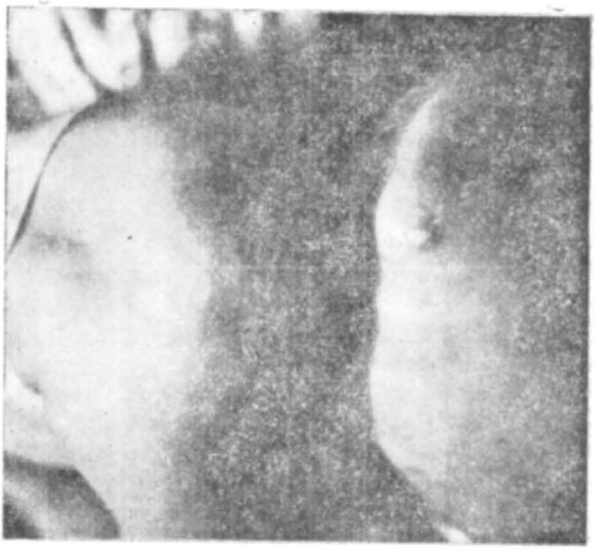

Fig. 2

Showing nodular lesions on the elbows

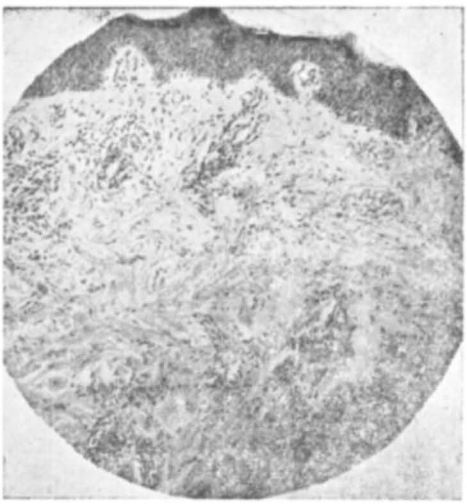

Fig. 3

howing several abnormal foci of degneration or Necrobiosis

Fig. 4

Showing an abnormal focus of necrobiosis in centre and surrounding palisading arrangement of cells (Histocytes) epithelioid cells fibroblasts

with topical coticosteroid (Dexamethason–Ledercort) with occlusive polythene dressing over the hands (Annular and discrete papular lesions) and punch biopsy of the Nodular lesions on the elbows. After two months, on follow up examination, there was almost no trace of lesions on the hands and also no recurrence of lesions at the sites of biopsied nodules.

Summary :

1. A case of Granuloma Annulare comprising of circinate, discrete papular lesions as well as nodular lesions is presented.

2. Response to topical steroid with occlusive dressing (circinate and papular lesions) and punch biopsy (nodular lesions) was appreciable.

3. A brief review of literature with discussion on etiology and treatment is presented.

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