

## NORWEGIAN SCABIES

By

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Norwegian scabies is a well defined entity. It is rarely reported. In the American Literature ten cases were reported till recently, when four more have been added by H. C. Maguire and A. M. Kligman (1960). This type of scabies was first described by Boeck in 1848 in Norway in a Leprosy patient. Cases have been reported from other countries of the World. All workers have stressed that this disease is met with in leprosy patients, patients with wasting diseases, institutionalized mental patients, and others living in insanitary conditions. Mongoloids are stated to be particularly predisposed and males even more so. In India scabies is still a common skin disease. 20.8% of our dermatology out door patients at the Victoria Hospital, Bangalore, suffer from scabies. The incidence is similar in other parts of the country. In the Indian literature there are no reports of Norwegian scabies to our knowledge.

Clinically it presents a very bizarre picture compared to ordinary scabies. The most distinctive feature is crusting and hyperkeratosis of the palms and soles. The crusts form plaques or horny exoresences of varied shapes and sizes. The lesions are symmetrically distributed and involve axillae, face, scalp, genitals, limbs and trunk. Intermingled with these striking eruptions are the less obvious papulo vesico pustular crusted lesions distributed in the normal sites of localization in ordinary scabies. In a fully developed case one can observe all stages in the development of these horny growths from a papule a millimeter in diameter to a large growth six to seven centimeters in diameter.

Norwegian scabies is caused by the same mite that causes ordinary scabies, and is believed to be due to an unusually severe and neglected infestation, in persons predisposed, the nature of which is not exactly known.

Microscopically the horny layer is greatly thickened, (See Fig 4) and galleries filled with mites in all stages of development from the egg through larval forms to fully developed male and female forms (See Fig 5) are seen in great numbers. Hessler (1893) estimated in one of his patients that there were 2000,000 mites and 7000,000 eggs, on his skin.

Because of the diversity of the manifestations the diagnosis is reached finally after many weeks, months or even years! There are cases where patients have been treated for psoriasis for five years before the diagnosis of Norwegian scabies was reached. This is due mainly to lack of suspicion. A feeble suspicion may be hastily dismissed by lack of clinical response to routine antiscabetic regime of treatment.

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We wish to report ten cases of Norwegian scabies from Bangalore. The first case was seen by one of us (D. P. J.) in December 1962, in a girl aged 10 years, from Madura, coming from a well-to-do family and mentally normal. The remaining nine cases were seen subsequently in the following months, the first seven of this group belonging to a single (entire) family. The puzzling, persistent picture of this family group evaded the correct diagnosis for five weeks, during which several diagnostic possibilities had to be considered, one after one, by elimination, and last of all the possibility of Norwegian scabies was considered. Once thought of this possibility the diagnosis was established beyond doubt by the microscopic examination of a tiny bit of grated material from the horny skin growths mounted in a drop of 10% potassium hydroxide solution, which revealed innumerable numbers of acari and their eggs in various stages of development. The 9th and 10th patients were adult males who presented scaly eruptions of palms and soles, in whom after two to three weeks Norwegian scabies was suspected and proved.

*Case 1.* A girl aged 10, from Madura, belonging to a well-to-do family was referred by her private physician for a chronic skin disease which had resisted various treatments for the past two years. She had a pruritic, generalized papulo-squamous eruptions, with several thick, warty, plaques on the palms knee and elbow regions. She had nits on the scalp hair in large numbers, and small vesico-pustular eruptions though less striking were diffusely distributed, in greater concentrations in the common sites of scabies. The first impression was that she was suffering from scabies and pediculosis and treated with gamma-benzene-hexachloride solution for three days, and the same regime repeated after ten days. There was slight symptomatic relief from pruritus, and clearing of pustular lesions. The appearance of the lesions assumed a lichenoid appearance. She was advised a course of P. A. M. injections 1 cc intramuscularly daily for ten days, in addition to the application 2% salicylic acid ointment. At the end of this therapy most lesions cleared except the, thick, crusted plaques, which resembled tuberculosis verrucosa cutis, though palmar surface is less commonly affected than dorsal surface of the hands. As her parents were away a permission for biopsy could not be obtained and so a course of Streptomycin ( $\frac{1}{4}$  Gm. i. m. daily) and Isoniazid (150 mgms per day) was advised for six weeks. She was further advised to apply an ointment of 3% salicylic acid and 3% sulphur ointment rubbing well over the plaques. This therapeutic response left us the impression that one part of her skin affection at least was favourably influenced by Streptomycin-Isoniazid therapy, while it was the continued keratolytic and antiseptic ointments used that cured her. This mistake became obvious to us only when the correct diagnosis was established in case 2, to case 8. It also set us on the wrong track by investigating in detail for cutaneous and systemic tuberculosis in all these patients.

*Case 2.* Man aged 35, husband of case 3, and father of case 4, 5, 6, 7 and 8. A farm labourer, from Amruthahalli, Yelahanka Taluk, Bangalore District. He had suffered from a pruritic, crusted, scaly lesions and large horny conical nodes some

of them forming plaques that reminded one of us (D. P. J.) of case 1. E. S. R., Montoux's Test, W. B. C. counts Chest X Ray were all within normal limits. S. T. S. repeated negative. Dark field examination from the base of the crusts: repeatedly negative. Scrapings from the horny crusts mounted in potassium hydroxide solution and examined under the microscope showed acari and eggs in enormous numbers.

*Case 3.* Woman aged 25; wife of case 2 and mother of Case 5, 6, 7, and 8. Had eruptions similar to case 2, for the last nine years. Scrapings from skin lesions showed large numbers of acari. All other laboratory examinations were as in case No. 2.

*Case 4.* Boy aged 12, son of case 2 & 3. Had skin eruptions from 7 years. The eruptions were pruritic, symmetrical, papular, nodular and crusted, localized on the hands, (See Figs 1, 2 and 3) over small joints of the hands, wrist, palms of the axilla, knee joints, dorsum of both feet scalp & face. Inguinal and posterior cervical lymph glands were enlarged on both sides. Scrapings from skin lesions showed acari in large numbers. Other laboratory examinations as in Case No. 2.

*Case 5.* Girl aged 9, daughter of case 2 & 3. The skin eruptions were of 7 years duration. She had the most severe involvement of all the family of seven. She had generalised, symmetrical, pruritic papular nodular and crusted lesions on the skin. No part of her body was free. The large horny outgrowths were dirty yellowish brown in colour, and reached six to seven centimeters in diameter and generally assumed blunt conical shapes, over the scalp, axillae, knee and elbow regions. Both the feet were severely involved on the plantar aspect, walking was painfully and she used to walk like a 'crab'. This aspect suggested a diagnostic possibility of tertiary yaws. Repeated S. T. S. and dark field examinations of the serum from the base of the crusted lesions and aspirates of the enlarged lymph glands were negative. Skin scrapings showed large numbers of acari.

*Case 6.* Boy aged 8, son of case 2 & 3. His skin lesions were a little different from the rest of the family. He had a generalized furfuraceous scaly eruptions with scattered, sparsely distributed papular and crusted nodules over the bony prominences. He had large crusted nodes on the shaft of the penis and on the glans penis. Lymph glands of the axilla, neck and inguinal regions were enlarged. Skin scrapings were positive for acari, all other laboratory tests were negative, as in case 5.

*Case 7.* Girl aged 4, daughter of case 2 & 3. Generalized papulovesicular lesions localised in the webs of the fingers, front of the chest, axillae and other areas. Face, palms and soles of the feet were free. Lymph glands in the inguinal region were palpable. Crusted lesions small and few in number. Skin scrapings showed large numbers of acari. All other laboratory examinations were negative, as in case 2, 3, 4, 5 & 6.

*Case 8.* Boy aged 3, son of case 2 & 3, the youngest of the family. Generalized papulovesicular and pustular lesions present. Few lesions were crusted. Most of these were present on the palms and soles. Skin scrapings showed large number of acari. All other laboratory tests were negative as in cases 2 to 7.

*Case 9.* Man aged 30 years from Bangalore. Bullock cart driver. Had pruritic scaly eruptions over the scalp, back, palms and soles, for over three years. Very few scattered papulovesicular lesions were present over the axillae, gluteal regions, wrists and back. Skin scraping showed large number of acari.

*Case 10.* Man aged 57 years from Kolar. A widower. Retired as a police constable 2 years ago. Had a chronic scaly eruption of the scalp palms and soles for over three years and papulovesicular eruptions in the hands, wrists, axillae, gluteal regions, back and thighs. Genital free. Nipples and areola affected. Scrapings from the scaly crusted palms showed large numbers of acari.

With the exception of case 1, all the rest were treated as indoor patients. At the time when the family of seven were admitted into the skin wards there was a minor epidemic of scabies amongst all the patients in both the male and female wards which was recognized 4 to 5 weeks after their admission, by which time the diagnosis of Norwegian scabies was reached.

Because of the resemblance of the crusted lesions to yaws tertiary yaws was considered in the family group, serologic tests and dark field examinations were repeatedly negative. Even so yaws was considered as a possibility as in the tertiary stage these tests could be negative. So a therapeutic test was made. The entire family had courses of anti-treponemal therapy with crystallin penicillin, procaine penicillin, P.A.M., benzathine penicillin, in doses of 10 to 12 mega units. When no response was obtained with this therapy the possibility of yaws was abandoned and a biopsy of the lesions from case 5, who had the most characteristic lesions was taken for examination. But before the biopsy result was available the possibility of Norwegian scabies occurred to one of us (D.P.J.) and the diagnosis was confirmed beyond all possible doubts by the finding of the acari from the scrapings of the lesions on the palm of case 5. Scrapings from the lesions of the rest of the family were all found to be positive for acari. The case with which acari can be demonstrated from patients with Norwegian scabies has to be seen to be believed. But the most difficult thing in the diagnosis seems to be the lack of suspicion of Norwegian scabies. Lack of response to routine antiscabetic therapy schedules should not be taken into account. When in doubt mount the skin scrapings in potassium hydroxide solution and look under the microscope; the possibility of Norwegian scabies can be settled in a few minutes.

#### Treatment of Norwegian Scabies :

Application of benzyl benzoate or sulphur preparations for 3 days is not effective in Norwegian scabies. These have to be followed up with daily rigorous scrubbing with soap after soaking for half an hour with 30% urea solution or liquor calcis sulphurate (Vleminkx's Solution) B.P.C., These patients must be segregated in the wards and their linen sterilized thoroughly. An average of four to six weeks of intensive, well supervised treatment is essential for a cure.

### CONCLUSION

The evasive diagnosis of Norwegian scabies is due to lack of suspicion. It should be considered in the differential diagnosis of scaly crusted eruption of the palms and soles, and other areas, such as in psoriasis, yaws, keratoderma blenorrhagica, tuberculosis cutis and lymphomas.

In literature Norwegian scabies has been described to occur in leprosy patients, with wasting diseases, institutionalized mental patients, the first patient was from a well to do family, all others were poor and living in insanitary conditions. All were mentally normal and none had mongoloid features. None suffered from leprosy, and no leprosy patient has been seen to suffer from Norwegian scabies by us. It is our impression that in western countries insanitary living conditions approach the desired level for the prevalence of Norwegian scabies in those circumstances and situation. It is our opinion that neglected personal hygiene is the most important single factor in Norwegian scabies. If Norwegian scabies be remembered as **NEGLECTED SCABIES** the possibility may be considered more often. In communities where the incidence of scabies is 20% in skin clinics, Norwegian scabies may be more common than we now believe.

### SUMMARY

✓ Ten cases of Norwegian scabies are reported from Bangalore, from the Skin Clinic of Victoria Hospital Bangalore. These are the first cases to be diagnosed by the authors in fifteen years. All except one patient were poor and living under insanitary conditions. Personal neglect is considered as the most important contributory factor in the development of this type of scabies. It is surmised that due to a low index of suspicion of this condition cases may be missed.

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### REFERENCES

1. Calnan, C. D. Crusted Scabies, Brit. J. of Dermat. 62:71-78, 1950.
2. Melanby K. Scabies, London, Oxford University Press, 1943.
3. George W. M. Norwegian scabies, A. M. A. Archiv. of Derm. 78:320-324, 1958.
4. Hessler, R. An extreme case of Parasitism, Science, 21:125, 1893.
5. H. C. Maguire and A. M. Kligman, Norwegian Scabies, 82:62-64, 1960.
6. J. W. Burks, Rodney Jung, W. M. George, A. M. A. Arch. of Derm. 74:131-140, 1956.
7. Chakravarthy, A. N., Ghosh S., and Banerjee A. K., A case of Scabies in a family transmitted from goats, Indian Med. Gaz. 88:153 (March) 1953.