

HISTOPATHOLOGICAL STUDIES OF INTESTINAL (JEJUNAL) MUCOSA IN PSORIASIS AND EXFOLIATIVE DERMATITIS

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Summary

Gross examination of the jejunal mucosal biopsy specimens has only a limited value, as out of 13 cases revealing normal morphology only 5 showed normal histology in psoriasis group while out of 7, only 4 cases revealed a normal histology in erythroderma group. Changes were observed more frequently in psoriasis than in erythroderma. In both the groups there is no relation between the histologic alterations and the age, or the duration of the illness. In psoriasis to a great extent mucosal changes are related to the extent of skin involvement. No such relation could be established in cases of erythroderma. In the absence of clinical features suggestive of derangements of the gastrointestinal tract it is tempting to presume that the enteropathy is secondary to the skin lesions.

It was observed in the past by many clinicians that malabsorption and chronic dermatosis were often associated. This prompted many workers to investigate whether intestinal changes were primary or secondary to cutaneous pathology. Bennett et al¹ and Shell² suggested that cutaneous changes were probably secondary to the intestinal pathology.

Shuster and Marks³ first introduced the concept of dermatogenic enteropathy. According to them the intestinal changes were secondary to the skin condition. They observed that steatorrhea was common in patients with extensive dermatosis and improved with the treatment of skin condition alone. Shuster et al⁴ concluded that the severity of steatorrhea was directly proportional

to the extent of skin involvement. In 1970 however they contradicted their own statement of 1967 and presented another study in which they found intestinal changes similar to those earlier described in healthy individuals too⁵.

Barry et al⁶ showed jejunal mucosa in the cases of extensive psoriasis to be significantly different from that of healthy individuals. In view of these conflicting reports the present study has been undertaken.

34 patients with psoriasis and exfoliative dermatitis were selected for the study. Routine investigations were done in order to exclude other abnormalities. Patients were divided into four groups according to the extent of skin involvement. 10 healthy persons were studied as controls.

Jejunal biopsy

Jejunal biopsies were done in all cases adopting Crosby and Kugler method⁷. Histopathological gradings of

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jejunal mucosal changes were made as described by Arora et al⁸. Steriomicroscopic grading of jejunal mucosa were done as described by Swishter et al (1967).

Observations

Age and sex incidence

Out of 33 cases studied 30 were males and 4 were females. In psoriasis group 21 were males and 2 were females while in exfoliative dermatitis, 9 were males and 2 were females. The age range was between 25 years and 75 years.

Clinical features

All the 23 patients with psoriasis had clinically characteristic psoriasis vulgaris lesions and showed positive Auspitz sign. One of them had psoriatic arthropathy also. 11 cases of exfoliative dermatitis had generalised erythema, exfoliations and marked itching.

The extent of skin involved as determined by rule of nine is shown in Table No. 1.

Routine laboratory investigations of blood, stool and urine were done in all cases. These revealed normal values.

Gross appearance of jejunal mucosa-

In each case a portion of jejunal mucosa was examined under dissecting microscope for alteration in the villous morphology. The criteria for grading were adopted from those described by Shushter et al⁴. Table No. 2 shows the results.

Microscopic observations -

The histopathological changes in jejunal mucosa in cases of psoriasis and exfoliative dermatitis were graded according to the criteria mentioned by Arora et al⁸. The grading of the histopathological study in present series is tabulated in Table No. 3. Figs. 1, 2, 2A, 3, 3A, 4, 4A.

Correlation was sought between the extent of skin involvement and histopathological changes. The observations on the psoriatic and exfoliative group are tabulated in Tables No. 4 and 5 respectively.

Discussion

In the past skin lesions have been described in association with gastrointestinal pathology, particularly in sprue and malabsorption syndrome^{1, 2, 9, 10, 11, 13}. After a thorough review of the

TABLE 1
The table showing extent of skin involvement

| | Upto 25% | 26 to 50% | 51 to 75% | 76 to 100% | Total |
|-------------|----------|-----------|-----------|------------|-------|
| Psoriasis | 3 | 11 | 8 | 1 | 23 |
| Exfoliative | — | — | — | 11 | 11 |
| Total | 3 | 11 | 8 | 12 | 34 |

TABLE 2
Table showing gross appearance of jejunal mucosa in psoriasis, exfoliative dermatitis and control group

| Grade | Gross appearance | Psoriasis No. of patients | Percentage | Exfoliative dermatitis No. of patients | Percentage | Control |
|-------|-----------------------------------|---------------------------|------------|--|------------|---------|
| 0 | Predominantly finger shaped villi | 13 | 56.5 | 7 | 63.3 | 10 |
| I | Predominantly leaf shaped villi | 5 | 21.5 | 2 | 18.18 | |
| II | Predominantly convoluted villi | 5 | 21.7 | 2 | 18.18 | |
| III | Flat mucosa | — | — | — | — | — |

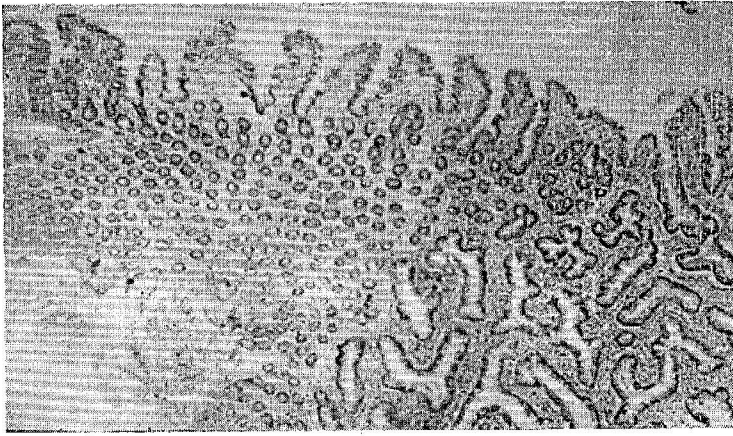


Fig. 1
Normal jejunal
mucosa
Grade 0 $\times 200$

Fig. 2
Intestinal muco-
sa-Grade I chan-
ge - Tall slender
and branched vi-
lli with few shor-
t and dwarf
Brush border is
regular with ba-
sally situated
nuclei of living
cells and mild to
moderate infil-
tration

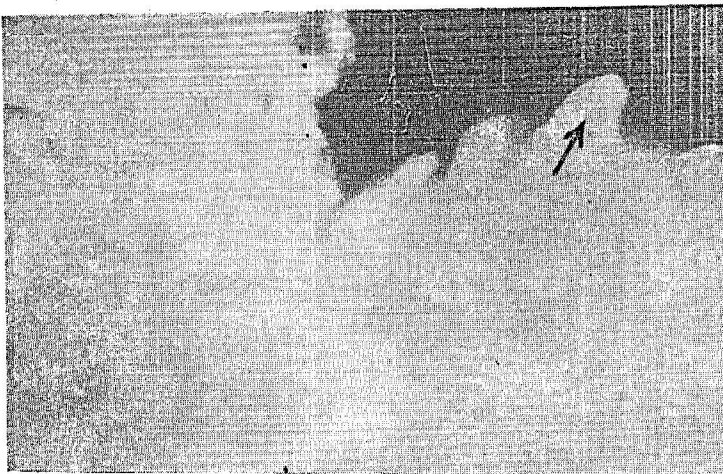
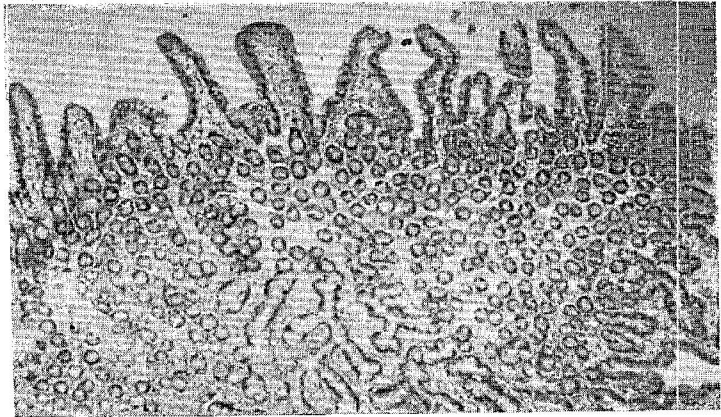


Fig. 2 A
Showing grade I
changes in jejunal
mucosa-a dissect-
ion microscopic
appearance.

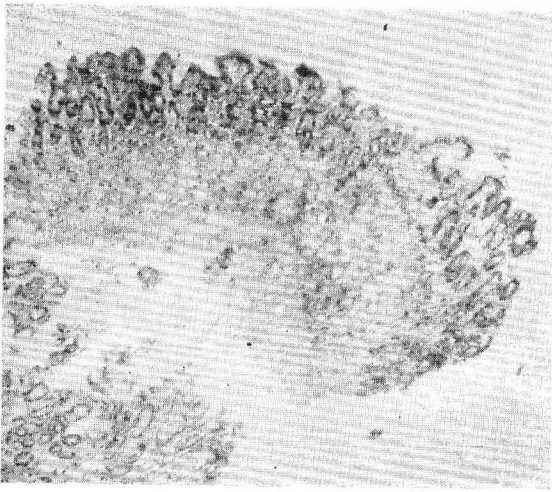


Fig. 3 Jejunal biopsy from a case of erythroderma showing grade II histopathological changes.

Fig. 3 A
Appearance under dissecting microscope showing predominantly convoluted appearance of mucosa (Gr. II)

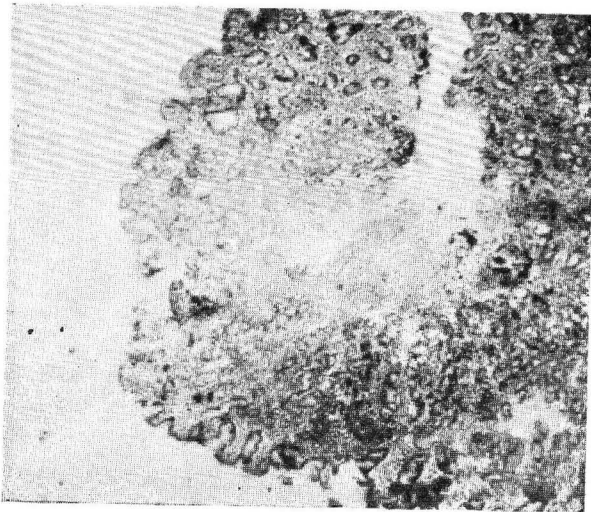


Fig. 4 Intestinal mucosa showing grade III changes in a case of erythroderma

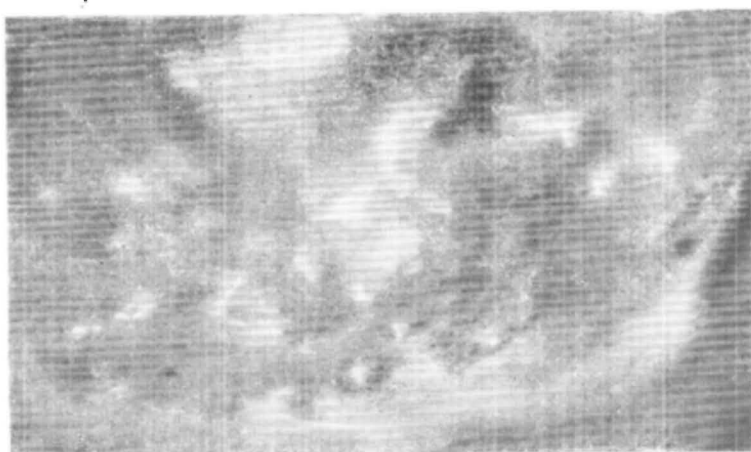


Fig. 4A Showing grade III changes under dissecting microscope showing flat mucosa with little or no villi.

work done by several workers and on the basis of their own findings, Marks and Shuster¹⁷ concluded that there is a great variation in the appearances of jejunal mucosa in healthy individuals. Baker et al¹⁸, observed the presence of convolutions in 24% of jejunal mucosa in South India. Whereas Stewart et al¹⁹ was not able to observe such convolutions in jejunal biopsies of healthy individuals from England. In the present study, jejunal biopsy from 10 apparently healthy males, ranging from 20 to 40 years of age, revealed the presence of predominantly finger shaped villi in the jejunal mucosa.

(a) Psoriasis group

The gross appearance of jejunal mucosa as observed under the dissect-

ing microscope, in 23 psoriatic patients revealed almost normal pattern in the majority of cases. None of the psoriasis cases revealed the presence of flat mucosa. Salem and Truelove²⁰ (1965) could observe the mucosal abnormality (presence of leaf shaped villi) in only 1 out of 14 cases of psoriasis, while Fry et al²¹ found similar change in one out of 3 cases of psoriasis studied by them. Shuster et al⁴ observed normal mucosal pattern in 10 patients and convolutional pattern in 12 out of 26 patients of psoriasis studied. However, many other workers^{15, 16, 17}, observed no significant alteration in the mucosal pattern in cases of psoriasis. The present study corroborates with the reported observations of Shuster et al⁴ and Barry et al⁶.

TABLE 3
Histopathological changes in psoriasis and exfoliative dermatitis

| Disease | Grade 'O' | | Grade I | | Grade II | | Grade III | | Total |
|---------------------------|-----------|-------|----------------|-------|----------------|-------|----------------|------|-------|
| | (Photo 1) | % | (Photo 2 & 2A) | % | (Photo 3 & 3A) | % | (Photo 4 & 4A) | % | |
| 1. Control group | 10 | 100.0 | — | — | — | — | — | — | 10 |
| 2. Psoriasis | 5 | 21.70 | 8 | 34.72 | 9 | 39.06 | 1 | 4.34 | 23 |
| 3. Exfoliative dermatitis | 4 | 36.36 | 3 | 27.27 | 3 | 27.27 | 1 | 9.09 | 11 |
| Total | 9 | | 11 | | 12 | | 2 | | 34 |

TABLE 4
Showing relation between skin involved and histopathological changes in jejunal mucosa in psoriasis

| Percentage of skin involvement | Gr. 'O' % | Gr. I % | Gr. II % | Gr. III % | Total |
|--------------------------------|-----------|---------|----------|-----------|-------|
| Upto 25 | 1 | 2 | Nil | Nil | 3 |
| | 4.34 | 8.68 | | | |
| 26 to 50 | 2 | 4 | 4 | 1 | 11 |
| | 8.68 | 17.36 | 17.36 | 4.34 | |
| 51 to 75 | 2 | 2 | 4 | Nil | 8 |
| | 8.68 | 8.68 | 17.36 | | |
| 76 to 100 | Nil | Nil | 1 | Nil | 1 |
| | | | 4.34 | | |

TABLE 5
Table showing the relation between the skin involvement and histopathological changes

| Percentage of skin involvement | Gr. 'O' % | Gr. I % | Gr. II % | Gr. III % | Total |
|--------------------------------|-----------|---------|----------|-----------|-------|
| 100% | 4 | 3 | 3 | 1 | 11 |
| | 36.36 | 27.27 | 27.27 | 9.09 | |

The histological alterations in the jejunal mucosa of Indian patients with chronic dermatoses have been studied in detail by Bedi et al²² and Arora et al⁸. Although, Bedi et al observed a significant decrease in villous crypt ratio with marked cellular infiltration in lamina propria in 4 out of 19 patients with extensive psoriasis, Arora et al⁸ have found only few short and broad villi with mild to moderate infiltration (Grade I) in 11 out of 15 cases of psoriasis. The present study observed normal histopathology in 21.70%, while minimal (grade I) to moderate (grade II) changes were observed with almost equal frequency (34.72% and 39.06% respectively). Thus, the frequency distribution of moderate (grade II) to marked (grade III) changes is higher in the present study as compared to that of the other workers (vide supra). The difference in the incidence might be incidental in view of the fact that the size of the samples in all these studies (including the present study) is small. Nevertheless, the present study substantiates the observations of Correia et al¹⁵, Leslie Preger et al¹⁶ and Marks

and Shuster¹⁷ that at least in a good number of cases of psoriasis, there may not be any significant alteration in the jejunal morphology and histology.

The extent of skin involvement in relation to histologic changes, showed great correlation in this study. Out of the 3 cases having 25 per cent skin involvement, 1 case (33.3%) had normal mucosa while 2 cases (66.6%) showed grade I changes. Out of the 11 patients having an involvement of 26 to 50% of the skin, 72.65% showed grade I and II changes. Out of the 8 cases having 51 to 75% skin involvement, 50% revealed grade II changes. Contrary to our observation, Shuster et al⁴, Barry et al⁶ and Bedi et al²² did not observe any significant relation between the degree of mucosal abnormality and extent of the rash.

(b) *Erythroderma group*

There were 11 cases of exfoliative dermatitis and all of these showed almost cent percent skin involvement. The gross examination revealed that 7 cases had normal and rest of them

convoluted jejunal mucosa. Microscopically only 4 cases had normal mucosa and 7 showed some variation from the normal. Among these 7, grades I and II changes were seen in 3 each and grade III changes in one. As all the 11 cases had almost cent percent skin involvement, it is evident from the present study that in cases of erythroderma, there is no relation between the extent of skin involvement and the histologic alterations in the jejunal mucosa. Similarly, no relation could be established between the duration of illness and the histologic alterations. Marks and Shuster⁵ observed abnormality in 1 out of 4 patients. Bedi et al²² found jejunal abnormality in 25 per cent of exfoliative dermatitis cases. Marks and Shuster¹⁷ considered the structural alterations as inconclusive. Shuster et al³ found abnormal faecal fat excretion in 9 out of 10 cases of exfoliative dermatitis and eczema. The observations of the present study are thus in agreement with those of Bedi et al²². There is no correlation between the histologic abnormalities and the extent of the rash.

Shuster and Marks³ postulated that the dermatogenic enteropathy may be the result of a reduction of blood flow to the intestine, elaboration of humoral agent from the diseased skin or the presence of some biochemical deficiency.

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Felicitations

Dr. B. K. Hareendran Nair, a senior member of the Kerala branch of I. A. D. V. & L. and Professor of Dermatology, Medical College, Kottayam has been elected Fellow of the Royal College of Physicians.