A COMPARISON OF BARBER'S AND POSTANAL PILONIDAL SINUSES*

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THOUGH much is written about pilonidal sinuses, their precise histological description is almost invariably neglected and their terminology has become confused. Only 4 proved barber's sinuses have been described in this country (Patey and Scarff, 1946, 1948; Goodall, 1961). The discovery in a barber of 4 interdigital sinuses and of a postanal sinus has stimulated this renewed investigation into their respective aetiologies.

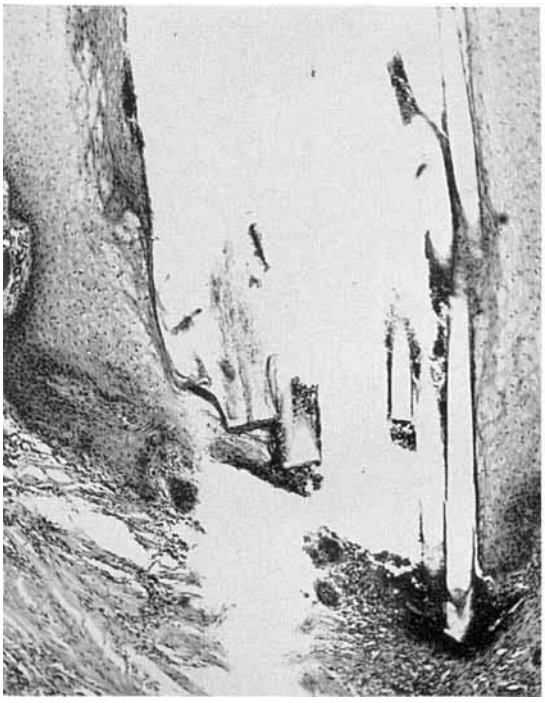

FIG. 1.—Note keratin and epithelium driven in by sharp hair ends. Darkly staining area is necrotic squamous epithelium. H. and E. (×52.)

CASE HISTORY

A barber aged 50 years suffered with attacks of cholecystitis, leading to pale stools, dark urine, and jaundice. For his non-functioning gall-bladder cholecystectomy was recommended. He also suffered with barber's sinuses, three in the webs of his fingers and one in the side of a finger. They had suppurated intermittently. In the skin overlying the sacrum there was the scar of a pilonidal sinus which had been healed for many years, but prior to healing had intermittently discharged.

Following clinical examination of his abdomen the patient complained of peri-umbilical pain, sweating, and passed into a state of mania with supraventricular tachycardia from which he died the same night. Post-mortem revealed, in addition to cholelithiasis, a phaeochromocytoma of the right adrenal.

FINDINGS.—Ninety-four sections from the four interdigital sinuses and the postanal sinus were examined, and stained either with haematoxylin and eosin, or Heidenhain's azan. *Figs.* 1, 2 show the sharp chisel-like hair ends driving squamous epithelium before them. The very darkly staining area in *Fig.* 1 is one of necrosis, as it is in *Figs.* 3, 5. Round-cell infiltration is evident in *Figs.* 3, 5. A most elaborate sinus is shown in *Fig.* 4, giving

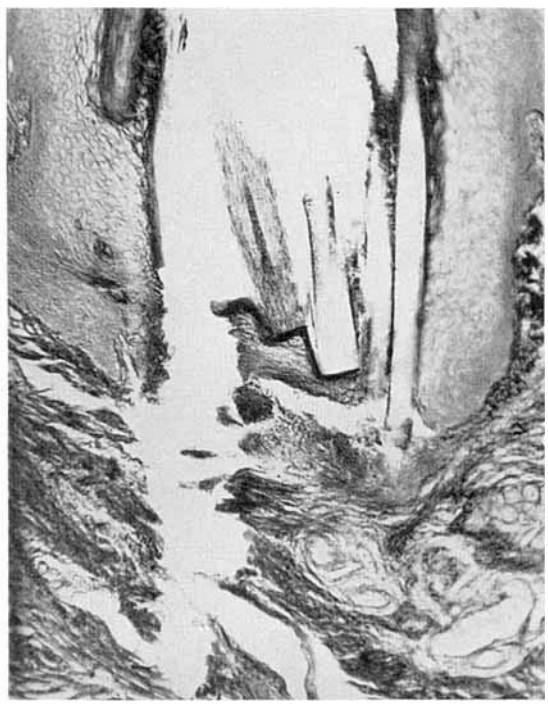

FIG. 2.—Shows chisel-like action of hair ends. H. and E. (×52.)

a honeycomb appearance due to the sheaths of squamous cells surrounding individual hairs. Foci of degeneration are again evident. Hyperkeratosis of the skin can be seen in places, though not everywhere. This must be due to chronic irritation. *Figs.* 5, 6 are taken from almost adjacent portions of the same sinus, to demonstrate the typical barber sinus lesion (square hair end and patch of epithelial necrosis) and the lines of strain described by fibrous tissue secondary to presumably forcible hair entry.

In his burnt-out postanal sinus there was no trace of squamous epithelium, only round-cell infiltration and two hair fragments; Prussian-blue staining granules were found in places.

DISCUSSION

Excluded from discussion are the hair-containing granulomata which continue to be discovered in all parts of the body and which as special examples of

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FIG. 3.—Most of the epithelial sheath is necrotic. Round-cell infiltration. Epithelial sheath broken up in top left-hand corner. H. and E. (× 52.)

FIG. 4.—An elaborate 'sinus', showing crescents of necrosis. Note epithelial cells between hairs. H. and E. (× 52.)

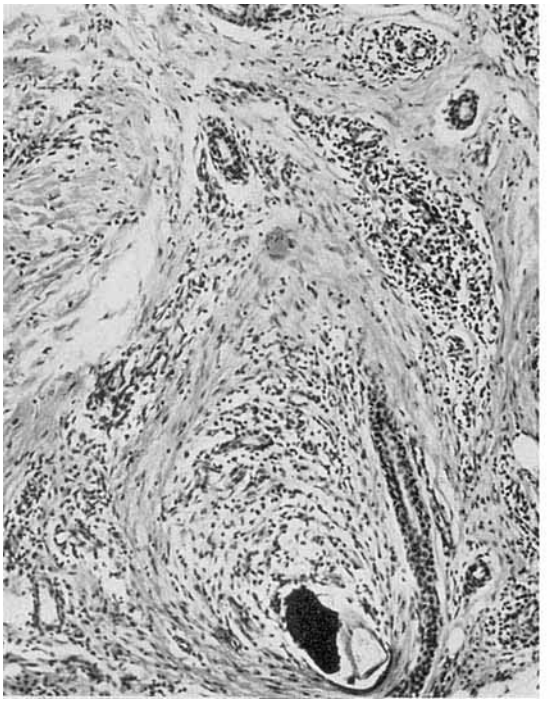

FIG. 5.—Epithelial implant degenerating in vicinity of square hair end. H. and E. (× 100.)

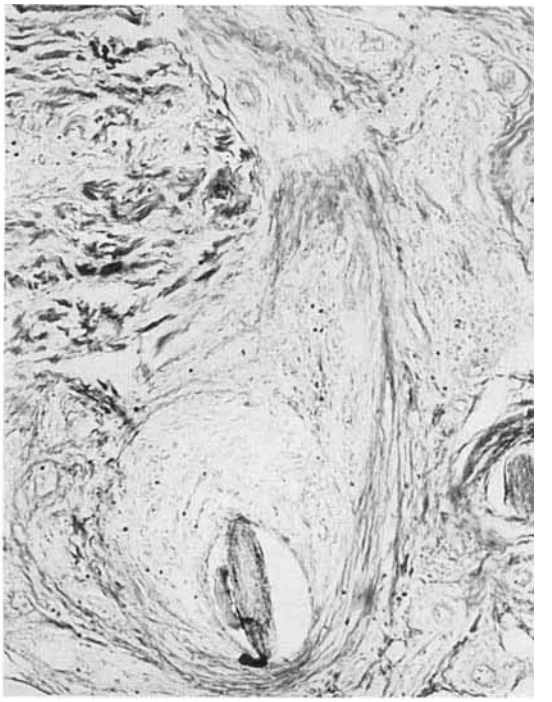

FIG. 6.—Taken from vicinity of *Fig.* 5 to show disposition of fibrous tissue. Heidenhain's azan. (× 84.)

foreign-body granulomata possess little intrinsic interest. The only other instance of double so-called 'pilonidal sinus' (Aird, 1952), with lesions over the sacrum and in the axilla, has raised the same questions as the patient reported here.

What is the significance of barber's sinuses and postanal sinuses occurring in the same patient? Are they aetiologically related or is their association purely accidental? Occurring in this way they highlight the controversy between the developmental and acquired theories of postanal sinus formation. This 50-year-old barber was naturally liable to interdigital sinuses. Did his postanal sinus carry equal significance? Barbers must be liable to postanal sinuses to at least the same degree as the general population. It has been suggested that even postanal sinuses may be due to hair-cuts, the hair dropping down behind the neck and becoming embedded in the postanal fold. This would, however, be a most tortuous course for the hair to follow in a barber, and, more important, his postanal sinus had been healed for many years whilst he was still practising his trade. The very healing of the sinus recalls the not widely known fact (Goodall, 1961) that postanal sinuses may heal without surgical intervention. Histology in this barber has, on the contrary, emphasized the great differences between the two types of hair-containing sinuses.

As his postanal sinus was 'burnt out', it had lost many of the histological features which are characteristic of postanal sinuses prior to the ravages wrought on their architecture by chronic inflammation. It has been suggested (Patey and Scarff, 1946, 1948) that because postanal sinuses and barber's sinuses contain granulation tissue, squamous epithelium, and hair, they are therefore likely to be identical in mode of formation; and despite the profound differences in architecture which serial sectioning and the use of special stains reveal, the 'acquired' theory of postanal sinus formation has proved so attractive as currently to be the more widely accepted one.

The reason is twofold. The majority of authors subscribing to this theory have not had the opportunity of studying the histological features of a barber's sinus, and therefore do not appreciate the illuminating story which an indubitably traumatic hair-containing sinus has to tell. For this reason this paper dwells on the detailed description of a barber's sinus. Secondly, confusion is introduced, at any rate in the surgeon's approach, by the factors responsible for recurrence after surgical excision. These, however, must be rigidly excluded from discussion about the aetiology of postanal sinuses because they introduce fresh, maybe iatrogenic, factors, and deserve separate study.

Histological features in sinuses preserved from extensive inflammation are alone sufficiently sharp to differentiate the barber's from the more common postanal pilonidal sinus.

They can be listed thus:—

	Postanal	*Barber's*
A. Hair		
	Ends: Club-shaped	Square cut
	Direction: Outward	Usually outward
	Number: Can be hundreds	Seldom exceed twenty
	Length: Can be 1 cm. or more	Less than 1 cm.
	Scales: Difficult to make out	Obvious
	Relation to other hair: Either adjacent or separated by inflammatory cells	Each hair sheathed by squamous epithelium, sometimes incompletely so
B. Epithelium		
	Overlying sinus: Normal, but often contains giant hair follicles (clinically visible)	Hyperkeratosis
	Lining sinus: Rete pegs with a very convoluted basement membrane in pre-inflammatory stage	No rete pegs; basement membrane smooth
	Part of major cavity	Present in numerous islands
	Post-inflammatory becomes resorbed, with escape of hair into surrounding tissue	No sign of absorption or interstitial hair escape
	Always viable	Frequently degenerating

The postanal sinus has been described as a developmental anomaly (Weale, 1955) and for this reason is found not only in the hairy male but also in women of fair complexion, and must be related to the familiar postanal pits. The fully developed sinus is a sequestration abnormality akin to branchial sinus. Its rete pegs resemble skin except for the presence of hair follicles and sweat-glands. Though hair papillae are difficult to demonstrate, these must disappear on hair shedding, for which the undeniable presence of hair bulbs is eloquent testimony. The absence of other skin appendages such as sweat and sebaceous glands is no reason for not regarding the lining as skin; even on the surface of the body the distribution of these appendages is selective.

When epithelium lining the sinuses is thin and flat, devoid of rete pegs, it is so in the heavily infected sinus, and has extended along the sinus wall during periods of relative inflammatory quiescence. It still differs from the epithelium to be found in the barber's sinus by its lack of keratinization.

The barber's sinus is an implantation dermoid. Short bristles have remarkable rigidity; associated as they are in the barber's sinus with a very sharp and squarely cut end, their penetration through the skin may carry epithelium implanted on their ends into the deeper tissues. Some of this epithelium may necrose (*Figs.* 1, 2) whereas other portions will survive; this is what happens in any skin-graft. Epithelial necrosis is never seen in the postanal sinus, and this alone makes it difficult to accept a traumatic theory for postanal sinuses.

Buried and infected epithelium causes continued discharge from sinuses of whatever aetiology. The part played by hair is permissive, not essential. When hair escapes into the tissues outside a sinus it may lie dormant for ever. If, however, it projects into the sinus or through the sinus to the surface, then it allows infection to spread alongside it, thus perpetuating the chronicity of the condition. The observation that phenol injected into postanal sinuses may lead to their healing (Greenwood and Maurice, 1962) supports the contention that hair extraction is not essential to cure; epithelial destruction is the more probable reason for its success.

It had been postulated that the polarity of the hair would be helpful in distinguishing developmental from traumatic hair sinuses (Weale, 1955). This investigation shows this not to be so. The almost uniform outward direction of hairs in the barber's sinus must be due to the rigidity and sharpness of the cut end of the hair, its uncut distal end being softer, more flexible, and therefore less likely to make an impression on the intact skin. Hypothetical forces of suction (Patey and Scarff, 1955; Brearley, 1955), in view of the lines of strain visible

histologically (*Fig.* 6), need not be invoked to explain hair-entry. The sinus on the side of the finger of our patient indeed precludes such an explanation.

SUMMARY

1. The histology of barber's sinuses is described.

2. A comparison of barber's sinuses and postanal pilonidal sinuses suggests that the former are implantation, the latter sequestration dermoids.

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A PEPTIC ULCER FAMILY

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MANY examples of familial peptic ulcer have been described. Another family, 10 members of which suffered from peptic ulcer, is recorded because of unusual features. Ulceration developed at an early age in several members and showed a marked tendency to penetration or other complications, including a choledochoduodenal fistula. Surgical treatment was required in 3 siblings aged between 17 years and 21 years. The youngest affected member was shown to have a duodenal ulcer at the age of 6 years.

FAMILY HISTORY

Nine of the 10 afflicted members occurred on the maternal side (*Fig.* 1). All the patients, save 2, had duodenal ulcers. The exceptions were the grandmother, who suffered from gastric ulcer, and one male of the second generation, who had a prepyloric ulcer. The second generation of 6 siblings all suffered from peptic ulcer with the exception of the elder sister. The diagnosis was established by barium-meal studies in all instances, and by operation where this was done. Details of the affected members are shown in *Table I.* Four cases are described as being of particular interest.

CASE REPORTS

S. W. Female, born 1937. Gastrotomy for the removal of an impacted coin was performed at the age of 7 years. Symptoms related to peptic ulceration began at the age of 14 years, when appendicectomy was performed. Review of the history at this time showed that she complained of epigastric pain and occasional vomiting for 2 months prior to appendicectomy. The appendix was not acutely inflamed and she complained of further bouts of epigastric pain with localized epigastric tenderness in the post-operative period.

Within 2 years she reattended with similar symptoms. Barium-meal examination on 22 Nov., 1954, showed gastric dilatation and barium in the bile-ducts, indicating a choledochoduodenal or cholecystoduodenal fistula (*Fig.* 2). Considerable delay in gastric emptying was noted and barium was present in the stomach up to 7 hours after the examination began.

Pain became more severe, with frequent vomiting after meals, and she lost weight progressively. Partial gastrectomy and cholecystojejunostomy were done by Sir John Nicholson on 30 Aug., 1955. A large penetrating ulcer was found in the second part of the duodenum, involving the common bile-duct. The ulcer itself was not excised, but cholecystojejunostomy was performed because it was thought that the inflammatory changes around the common bile-duct might lead to stricture formation at a later date.

An uneventful recovery followed and she married in May, 1957. Seven years after operation she remains

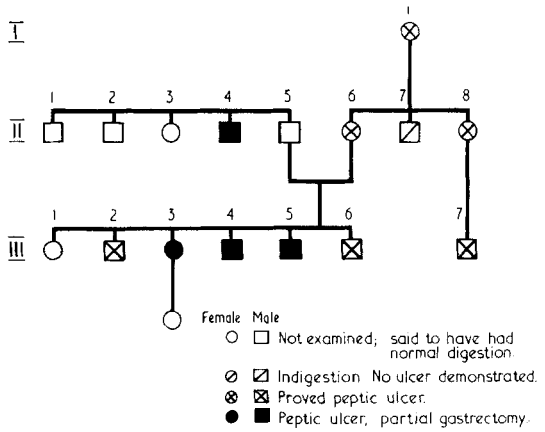

FIG. 1.—The family tree.

symptom-free, leading an active life as housewife, and has a healthy daughter aged 2 years.

W. W. Male, born 1939. Assistant stock cutter. This patient first attended St. Leonard's Hospital, aged 16 years, in April, 1955, complaining of abdominal pain and vomiting. His symptoms began 6 months before attendance. The pain often occurred at night and was relieved by vomiting and eased by his doctor's white medicine.

On examination, epigastric tenderness was noted. Barium-meal examination showed a small lesser curve gastric ulcer and a duodenal diverticulum. Symptoms

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