

Alcohol, Aspirin, Depression, Smoking, Stress and the Patient with a Gastric Ulcer

O. A. A. BOCK

SUMMARY

It would seem that a gastric ulcer is the product of an interaction between chronic gastritis, the acid (and pepsin) of the gastric juice, and one or more precipitating factors. In a group of 194 consecutive patients with gastric ulceration particular note was made of whether they smoked, drank alcohol, used salicylates, were depressed or had experienced recent stress. There was an extraordinarily high incidence of depression among White women.

S. Afr. med. J., 50, 293 (1976).

The aetiology of gastric ulceration is to a large extent still unknown. It has been known for more than a century that there is a close relationship between chronic gastritis and gastric ulceration. Until recently it was accepted that the gastritis was a consequence of the ulcer,¹ but there is now good evidence that the gastritis is present before the ulcer develops.² Why the patient develops chronic gastritis is also unknown, but inheritance, alcohol, smoking and bile regurgitation may all play a role.³ Neither is it always certain why the ulcer develops when it does. Stress (Curling's⁴ and Cushing's⁵ ulcers), smoking,⁶ aspirin⁷ and depression⁸ have been incriminated, while many think that alcohol should also be blamed. To date, a prospective study, in which all these factors were specifically recorded for each patient who presented with a gastric ulcer, has not been published. This is the report of such an inquiry.

METHODS

Every consecutive patient who was seen during a 2-year period has been included.

I took almost all the histories. It was recorded that a patient smoked if he smoked only 1 cigarette per day; that he drank if he enjoyed only the occasional beer, glass of wine or brandy; and that he used aspirin if he took only the odd aspirin for a cold or a headache. It was thought that this approach would be preferable to one of setting arbitrary limits of so many cigarettes per day or so much alcohol per week, because it was anticipated that there might be a patient who was apparently so sensitive to one or other of these factors that only a

few cigarettes, or the occasional drink, or one aspirin, would be sufficient to precipitate the development of his ulcer. In the event, this is what happened with alcohol. A 68-year-old White woman, who had previously had an ulcer in association with a bout of reactive depression, developed the symptoms of a new ulcer within a few hours of drinking a glass of champagne at a wedding. Another reason why an arbitrary limit was thought to be unreliable is that most patients do not tell the truth when they have to state exactly how much they smoke or drink, and invariably underestimate the quantity.

A patient was recorded as having suffered stress if, during the months before the onset of his ulcer symptoms, he had experienced one or several out-of-the-ordinary physical, psychological or social upsets, as, for example, a motor accident, a change of employment with consequent increased responsibility, or the death of a close relative. Although many patients were willing to discuss these, other patients were reluctant to divulge personal worries and it was often necessary to get the information from a relative.

A patient was said to be depressed if he complained of, or admitted on direct questioning to symptoms of endogenous or reactive depression, such as early morning wakefulness or an inability to go to sleep; low spirits in the morning which improve as the day goes on, or to feeling worse in the evening; anxiety; ideas of unworthiness and an inability to concentrate on his work or outside interests; or thoughts of committing suicide.

RESULTS

There were 194 patients: of these, 65 were White men, average age 53 years (range 19-87 years); 70 were White women, average age 54 years (range 22-86 years); 44 were Coloured men, average age 44 years (range 15-72 years); and the remaining 15 were Coloured women, average age 46 years (range 25-81 years). No Black patient with a gastric ulcer was seen during this period.

The associated factors of the individual patients are recorded in Tables I-IV. The 8 patients in whom none of the associated factors were present are excluded from these tables; they will be discussed separately.

In Table V, the frequency with which the various factors were present in the different racial and sex groups is shown. There is a striking difference between the White women and the other groups in that only 2 of the White women were not depressed or had not experienced stress. The majority of the Coloured women were also depressed or were subject to psychosocial stresses, but, in addition, most of them smoked, drank al-

Gastro-intestinal Clinic, Department of Medicine, University of Stellenbosch and Tygerberg Hospital, Parowvallei, CP
O. A. A. BOCK, D.M., F.C.P. (S.A.)

Date received: 8 August 1975.

TABLE I. FACTORS ASSOCIATED WITH GASTRIC ULCERS IN WHITE MEN

Age	Alcohol	Aspirin	Depression	Smoking	Stress
62		+		+	
61				+	
50				+	
52				+	
54				+	
38				+	
47	+		+	+	
41	+		+	+	
64				+	+
70				+	
64			+	+	
58		+		+	+
42			+	+	
60				+	+
87		+		+	
50	+	+		+	
59					+
64		+			
35		+		+	+
28		+		+	+
42	+	+		+	+
42		+		+	+
41				+	
82		+		+	+
43	+			+	
48	+			+	+
43	+			+	+
43		+		+	+
*48	+	+		+	+
50	+	+		+	+
78			+	+	
59	+			+	+
42				+	
64				+	
19				+	+
26				+	+
30				+	+
52				+	+
20	+	+	+	+	
45				+	+
64	+			+	
67		+		+	
32				+	+
66	+	+		+	+
78		+	+		
51				+	
36				+	+
46		+		+	+
35				+	+
53				+	
53	+	+		+	
62	+			+	
34		+	+	+	+
23	+	+		+	+
64	+			+	
*56		+			
67				+	+
61					+
53	+		+		
62				+	+
54	+	+	+	+	

* Also taking steroids.

TABLE II. FACTORS ASSOCIATED WITH GASTRIC ULCERS IN WHITE WOMEN

Age	Alcohol	Aspirin	Depression	Smoking	Stress
64		+	+		
52		+	+		
51		+	+	+	
47				+	+
49		+	+		
42		+	+	+	
36					+
41		+	+		
54		+	+		
53		+			
61			+	+	
62		+	+	+	
71			+		
71		+	+		
69	+				
73			+		
28					+
58			+	+	
54		+	+	+	
31			+	+	
32		+	+		
59			+	+	
70			+		
61		+	+		
52					+
50		+			+
40					+
58		+	+	+	
72			+		+
22			+		
77					+
72					+
54			+	+	
57					+
54			+		
36					+
71		+	+		
52	+			+	+
56			+		
24			+	+	
52		+	+	+	
50			+		
43			+	+	
60					+
*37		+		+	+
22		+		+	+
60		+		+	+
28	+			+	+
59		+	+		
21	+			+	+
65		+	+		
60			+		
60		+			+
25		+		+	+
61				+	+
70					+
57		+	+		
71		+	+		
77			+		
50		+	+	+	
75		+			
56			+		+
67			+		
37		+			+
58					+
41		+	+	+	
57			+		
42		+	+	+	

* Also taking steroids.

cohol and took aspirin. There is not much difference in the incidence of the associated factors between the men, with the possible exception that more of the Coloured men drank alcohol. There were 8 patients in whom none of the factors which were sought were present. From 5 of these it was not possible to take an adequate history; 2 White men, aged 41 and 83 respectively, were

TABLE III. FACTORS ASSOCIATED WITH GASTRIC ULCERS IN COLOURED MEN

Age	Alcohol	Aspirin	Depression	Smoking	Stress
53		+		+	
53	+	+		+	
50				+	
52	+	+		+	
41	+			+	+
33	+			+	
60	+			+	
44	+			+	+
55				+	
41			+	+	
57				+	+
52		+		+	+
48		+		+	+
24				+	+
27				+	+
62	+	+		+	+
63				+	
40	+			+	
55				+	
32	+	+		+	
53				+	+
52		+	+	+	
37	+			+	
65	+	+		+	
50				+	
30				+	
30				+	
39	+	+		+	
52					+
26	+			+	
36		+		+	+
23				+	+
33	+	+	+	+	
48		+		+	+
34			+	+	+
42	+	+		+	+
51	+			+	+
38	+	+		+	+
31	+			+	+
15		+			+
38	+	+		+	
24	+			+	
31	+			+	+

TABLE IV. FACTORS ASSOCIATED WITH GASTRIC ULCERS IN COLOURED WOMEN

Age	Alcohol	Aspirin	Depression	Smoking	Stress
30		+	+	+	
32		+	+		
43		+	+	+	
41	+			+	+
51			+	+	
32	+	+	+	+	
52		+	+	+	
59		+		+	+
47	+	+		+	+
30		+	+	+	
56		+	+		
64		+	+	+	
25			+	+	
39	+	+	+	+	

she had been depressed for some time. In the case of 2 other patients, a 72-year-old Coloured man and an 81-year-old Coloured woman, repeated interviews with them and their relatives failed to disclose clandestine smoking or drinking habits, or causes for tension or depression. A 74-year-old retired White engineer denied a cause for worry, but his daughter said that he was experiencing financial problems as a result of the liquidation of a company in which he had an interest.

DISCUSSION

Gastric ulceration is a complex disease, the pathogenesis of which is still imperfectly understood. However, two facts stand out; the first is the close relationship which exists between gastric ulceration and chronic gastritis; and the second is that, with very few exceptions, gastric ulceration does not occur in the absence of acid in the stomach. As far as the former is concerned, the present evidence is that chronic gastritis precedes the development of the ulcer, because it has been found that the degree of gastritis was the same or worse after the ulcer had healed,² which is the opposite of what one would have expected to happen if the gastritis were a consequence of the ulcer. The exact role of the acid in the development of the ulcer is not known. That it is not the amount of acid that matters is clear, because the majority of patients with gastric ulceration have a normal or a low acid secretion, and it is probable that the acid is nothing more than an essential link in

inmates of the chronic section of a psychiatric hospital; another White man aged 89 was completely deaf; a White woman aged 80 underwent emergency endoscopy for upper gastro-intestinal bleeding and died soon after the subsequent operation; and a White woman, aged 86, who had been seen in 1970, when she had a gastric ulcer, had since undergone such mental deterioration that it was not possible to talk to her, but her daughters said

TABLE V. COMPARISON OF FREQUENCY OF THE ASSOCIATED FACTORS IN THE VARIOUS SEX AND RACIAL GROUPS

	White				Coloured			
	Men (59)		Women (68)		Men (44)		Women (14)	
	Number	%	Number	%	Number	%	Number	%
Alcohol	20	33,8	4	5,8	21	43,8	4	28,5
Aspirin	22	37,2	32	47,0	17	39,5	11	78,5
Cortisone	2	3,2	1	1,4	0	0,0	0	0,0
Depression	10	16,9	43	63,2	4	9,3	11	78,5
Smoking	53	89,8	25	36,7	39	90,6	12	85,7
Stress	29	49,1	25	36,7	20	46,5	2	14,2

a chain of events which precedes the development of an ulcer (it is possible that the pepsin is more important).

It is also well known that a patient who has previously had a gastric ulcer can remain well for months or years, until one day he suddenly develops a new ulcer. Something must precipitate this. Several possible precipitating factors have thus far been identified. They are smoking, alcohol, aspirin, stress and depression, acting either singly or together; and there are probably others. The role of corticosteroids is uncertain,⁹ and the ulcers of the 3 patients who were treated with steroids (because of recurrent asthma) healed despite the fact that treatment with the steroid was continued. Indomethacin¹⁰ and phenylbutazone¹¹ have also been incriminated, but neither was a factor in the illness of any of the patients reported here. Many patients are convinced that the eating of certain foods is closely connected with the development of their symptoms, and the role of food in the pathogenesis of the disease warrants more detailed investigation.

The mechanism by which these factors precipitate the development of the ulcer from the underlying chronic gastritis is a matter for speculation. Smoking, alcohol and aspirin (and steroids and other drugs) may do this through local effects on the gastric mucosa, but how stress and depression can do this is as baffling as why some patients develop asthma and others hyperthyroidism, diabetes mellitus, psoriasis or a myocardial infarction after a period of great emotional or physical upset.

It would seem, therefore, that a gastric ulcer is the product of an interaction between a chronic gastritis, the acid (and pepsin) of the gastric juice, and a precipitating factor. Exactly how this interaction is brought about is not known, and in general it can be said that surprisingly little is known of the pathogenesis of this common disease.

The development of a gastric ulcer can be seen as a temporary 'failure' of the gastric mucosa. This phenomenon of temporary 'failure' of an organ is well known in other chronic diseases which occur in the human body. A patient with compensated cirrhosis of the liver can go into liver failure when he develops a chest infection, has a gastro-intestinal haemorrhage, or has a bout of excessive drinking; a patient with chronic bronchitis and emphysema may lapse into respiratory failure if she gets an exacerbation of his bronchitis, develops congestive cardiac failure, or has a pulmonary embolus; a patient with chronic glomerulonephritis can develop renal failure if he gets a superadded urinary tract infection, becomes dehydrated, or experiences a gastro-intestinal haemorrhage; the woman with well-controlled diabetes mellitus may develop uncontrolled diabetes if she develops a skin infection, becomes pregnant, or is given corticosteroids; and the patient with ischaemic heart disease may develop congestive cardiac failure if he has a chest infection, becomes anaemic or has a myocardial infarction. In each case the underlying chronic disease remains when the temporary 'failure' has been corrected.

The 194 patients with gastric ulceration have not been compared with a group of 194 matched controls. There are several reasons why this was not done; firstly, it was not the aim of the study to determine whether smoking, alcohol, aspirin, stress or depression were present more or less frequently in the patients with gastric ulcers than in the general population — the aim was simply to note which of these factors were present in the *individual* patient with a gastric ulcer. Secondly, although details of smoking, drinking and salicylate use may be readily given, it was anticipated that few of such a selected group of healthy persons would be prepared to divulge personal details to somebody out of the blue, considering how reluctant many patients are to do this when they consult their own doctor.

That the development of a gastric ulcer can be precipitated by alcohol, smoking, salicylates, stress and depression has a bearing on the management of the individual patient with a gastric ulcer. The management of such a patient consists of 3 separate but interrelated aspects; relief of his symptoms, healing of his ulcer, and prevention of recurrence of the ulcer. Relief of his symptoms is easy and is rapidly achieved by giving him an alkali, telling him which foods to avoid, telling him not to smoke or drink, and arranging for him to have a holiday; within a couple of weeks his symptoms have gone.

The healing of his ulcer, however, is more difficult and takes longer. Controlled studies have shown that the healing is enhanced by bed rest,¹² no smoking,¹³ and therapy with drugs such as carbenoxolone sodium¹⁴ and BCP compound.¹⁵ I believe that the unique circumstances of each patient should be taken into consideration and that the treatment regimen should be planned accordingly. The doctor should know the psychosocial aspects of his patient. To acquire this knowledge takes time. As a rule, the patient thinks that the doctor is busy and has only a limited amount of time to listen to him, so he concentrates on the details of his presenting complaint and does not mention personal worries unless the doctor specifically asks about them, or unless he notices that the doctor is in no hurry to conclude the consultation, when he may gingerly offer these worries as an excuse for his present complaint. The doctor should encourage the patient to talk about his problems, because it has now been shown that there is frequently a close relationship between previous psychological upsets and social upheavals, and physical illness — the concept of psychosocial life crises.¹⁶ The depressed woman should be given an antidepressant drug and should be encouraged to look for something to do during the day. The rushed businessman, who smokes and drinks too much, and who has not had time for a holiday for years, should be made to understand that he must have one, and that his future health depends upon his ability to adjust his habits. The Coloured woman, who has many children and a delinquent husband, needs the help of the social worker who can obtain a maintenance grant for her and her children. The farm labourer, on the other hand, is as a rule insufficiently motivated to stop smoking and drinking, and

his social circumstances are unlikely to change, so it is probably wiser to refer him to the surgeon and not to attempt medical treatment.

Gastric ulcers have a tendency to recur, and the prevention of this tendency is the most difficult and frustrating aspect of the management of the disease. So far, no drug has been marketed which will lessen this tendency. It is possible, however, that the recurrence rate could be reduced if a careful search for the factors which precipitated the development of the ulcer in the first instance were made, and if the patient could avoid these in the future.

REFERENCES

1. Schindler, R. (1947): *Gastritis*, p. 1. London: William Heinemann.
2. Gear, M. W. L., Truelove, S. C. and Whitehead, R. (1971): *Gut*, **12**, 639.
3. Bock, O. A. A. (1974): *S. Afr. med. J.*, **48**, 2063.
4. Curling, T. (1842): *Trans. med. Soc. Lond.*, **25**, 260.
5. Cushing, H. (1932): *Surg. Gynec. Obstet.*, **55**, 1.
6. Edwards, F. C. and Coghill, N. F. (1966): *Brit. med. J.*, **2**, 1409.
7. Chapman, B. L. and Duggan, J. M. (1969): *Med. J. Aust.*, **1**, 1179.
8. Alp, M. H., Court, J. H. and Grant, A. K. (1970): *Gut*, **11**, 773.
9. Cooke, A. R. (1967): *Amer. J. dig. Dis.*, **12**, 312.
10. Taylor, R. T., Huskisson, E. C., Whitehouse, G. H., Hart, F. D. and Trapnell, D. H. (1968): *Brit. med. J.*, **4**, 734.
11. Mauer, E. F. (1955): *New Engl. J. Med.*, **253**, 404.
12. Doll, R. and Pygott, F. (1952): *Lancet*, **1**, 171.
13. Doll, R., Jones, F. A. and Pygott, F. (1958): *Ibid.*, **1**, 657.
14. Doll, R., Hill, I. D., Hutton, C. and Underwood, D. J. (1962): *Ibid.*, **2**, 793.
15. Moshal, M. G. (1974): *S. Afr. med. J.*, **48**, 1610.
16. Rahe, R. H., Meyer, M., Smith, M., Kjaer, G. and Holmes, T. H. (1964): *J. psychosom. Res.*, **8**, 35.

Personal Experience

L. SCHAMROTH

SUMMARY

Three attacks of infective endocarditis with consequent emergency surgery to the aortic and mitral valves leave their mark. These are the impressions of a physician at the receiving end of his medical environment, an experience which entailed 4 periods of hospitalisation in 2 hospitals.

S. Afr. med. J., **50**, 297 (1976).

Clinical observation is always a fascinating exercise, and no less so when the observation is directed at oneself. The following, in particular, left an impression.

PERSONAL OBSERVATION

Clubbing of the Fingers: A Method of Assessment

The recognition of finger clubbing dates back to the original observation of Hippocrates.¹ Yet, early clubbing with 'filling in' of the nail bed is often difficult to evaluate if the finger is viewed in isolation. I found that the assessment of my own clubbing was facilitated by the simple

expediency of placing together the dorsal surfaces of the terminal phalanges of similar fingers — particularly the ring fingers (Fig. 1). In the normal individual, a distinct aperture or 'window', usually diamond-shaped, is formed at the bases of the nail beds (arrow in diagram A of Fig. 1). The earliest sign of clubbing is obliteration of this 'window' (diagram B of Fig. 1).

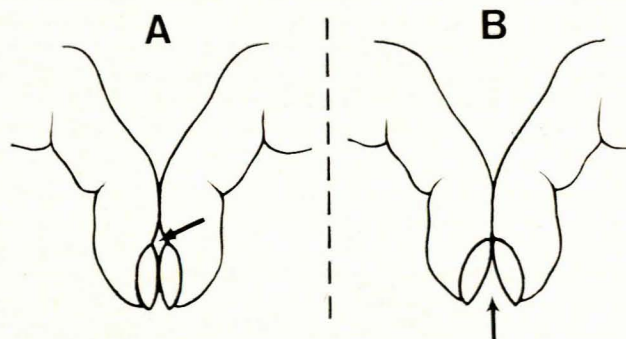


Fig. 1. Diagrams illustrating (A) normal finger contour, and (B) clubbing of the fingers.

Another aspect of clubbing which becomes evident from this manoeuvre is the formation of a prominent distal angle between the ends of the nails. This angle is normally minimal, virtually non-existent, and does not extend more than half-way up the nail bed (diagram A of Fig. 1). Clubbing manifests with an abnormally wide and deep angle which extends more than half-way up the finger nails (arrow in diagram B of Fig. 1). In my case, the 'window' reappeared 2 months after the infection had been

Department of Medicine, Baragwanath Hospital and University of the Witwatersrand, Johannesburg

L. SCHAMROTH, M.D., D.S.C., F.R.C.P., F.A.C.C., F.R.S. (S.A.),
Professor of Medicine and Chief Physician

Date received: 8 September 1975.