

Shigella given by gavage was a factor influencing invasion from the gastrointestinal tract, but that within 5 minutes after their administration by gavage they could be cultured from tissues of the mice.

Summary. *Shigella sonnei*, when given by gavage to white mice, invaded beyond the walls of the gastrointestinal tract; were found within 5 to 30 minutes in cultures of spleens, livers, kidneys, central mesenteric glands, lungs and hearts of the majority of mice; and were seldom cultured from these tissues after

2 hours from the time of gavage. The Shigella were found most often in cultures of the central mesenteric glands and least often in cultures of tail blood.

The number of viable Shigella and the weight of the mice were factors influencing the invasion by the Shigella from the gastrointestinal tract. The minimal number of viable Shigella which, when given by gavage, invaded beyond the gastrointestinal tract, was 150 million for mice weighing 17 to 18 g and 13 million for mice weighing 8 to 11 g.

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Effect of Non-Specific Protein (Aolan) upon Twelve-Hour Nocturnal Gastric Secretion in Man.*

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A recent study¹ demonstrated that nocturnal and 24-hour gastric secretion may diminish in man during the intramuscular injection of large quantities of an enterogastrone concentrate. This decrease is variable in degree, temporary in duration, and often followed by an increased output of acid. Since the concentrate contains a mixture of proteins, the possibility of a non-specific effect was considered. The present study was undertaken to further clarify this question.

Previous investigations of the effect of non-specific proteins upon gastric acidity have dealt with secretion stimulated by various test meals or by histamine. Vanzant and Snell² observed, in nine healthy dogs injected intravenously with a killed culture of *B. prodigiosus*, a decrease in the volume and acidity during the febrile period, followed by a more prolonged rise, and 48 hours later by normal values. Meyer, Cohen and Carlson³ also noted a temporary decrease in gastric acidity during the fever induced by *B.*

prodigiosus. The acidity of the fasting contents removed during the febrile period in 6 of 17 patients with peptic ulcer, treated with triple typhoid vaccine or Lilly's type "H" antigen, was unchanged in 2 and decreased in 4; in one case the acidity increased 3-fold several hours after the termination of fever. Following the treatment, there was no constant change in acidity.² Most writers have reported a decrease in gastric secretion during fever, although the results vary considerably.⁴ Martin⁵ found no constant rise or fall in the acidity of patients with peptic ulcer given repeated intramuscular injections of 10 cc of a purified milk preparation (Aolan).

Method of Study. Ten patients, 9 males and 1 female, between the ages of 36 and 61 years, were studied. A duodenal ulcer was present in 9 and a jejunal ulcer in 1 male patient. The 12-hour nocturnal gastric secre-

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¹ Kirsner, J. B., Levin, E., and Palmer, W. L., *Gastroenterology*, 1948, **10**, 256.

² Vanzant, F. R., and Snell, A. M., *J. Clin. Invest.*, 1930, **46**, 768.

³ Meyer, J., Cohen, S. J., and Carlson, A. J., *Arch. Int. Med.*, 1918, **21**, 354.

⁴ Meyer, J., and Kartoon, L. B., *Arch. Int. Med.*, 1930, **46**, 768.

⁵ Martin, L., *Arch. Int. Med.*, 1929, **43**, 299.

TABLE I.
Effect of Non-Specific Protein (Aolan) on 12-Hour Nocturnal Gastric Secretion in Man.
(10 Patients.)

Patient	Control period		After Aolan*	
	Vol. (cc)	Output HCl (mg)	Vol. (cc)	Output HCl (mg)
1. E.M. 370374	1176	3933	737	2518
Jejunal ulcer	1325	4894		
	1108	3044		
2. C.B. 130099†	508	1026	664	1158
Duod. ulcer				
3. R.B. 160290	784	1287	694	1327
Duod. ulcer				
4. A.F. 419242†	819	1607	1206	3601
Duod. ulcer	1341	3882		
5. J.F. 420465	531	855	935	1658
Duod. ulcer				
6. E.B. 419277	737	1357	1032	2438
Duod. ulcer				
7. F.P. 401669	391	1481	790	2685
Duod. ulcer				
8. V.R. 420485	561	1134	1062	2953
Duod. ulcer				
9. M.S. 415557	584	1496	1084	3344
Duod. ulcer	895	2351		
10. J.S. 420271†	1297	3417	1523	4289
Duod. ulcer				

* 20 cc Aolan intramuscularly at 8:30 P. M., onset of nocturnal period.

† Chills and fever (38.4-38.5°C) during period of observation.

tion was measured from 8:30 P.M. to 8:30 A.M. by the continuous suction technic described previously.⁶ After control observations had been obtained for 1 to 3 nights, 20 cc of a sterile lactalbumin solution (Aolan) were injected intragluteally at 8:30 P.M.; the stomach then was aspirated as in the control periods. Four patients developed chills and fever up to 38.5°C several hours after the administration of the preparation. The pain accompanying the injections was similar to that observed with enterogastrone.

Results. The data are tabulated in terms of total volumes and output of hydrochloric acid for the 12-hour nocturnal period (Table I). Gastric secretion was unchanged in 3 cases, diminished slightly in 1 and increased

in 6; the rise in 4 of the latter group was nearly 2-fold. The hourly pattern of secretion following the injection of Aolan resembled that of the control periods. Among the 4 patients who developed fever, the output of acid was unaltered in 2 and increased in 2 cases.

Summary. The output of hydrochloric acid in the 12-hour nocturnal gastric secretion of 10 patients with peptic ulcer, following the intramuscular injection of 20 cc of a sterile lactalbumin solution, was unchanged in 3 cases, decreased slightly in 1 and increased in 6 patients. These results suggest that the temporary reduction in gastric secretion occasionally observed during the administration of enterogastrone is not attributable to a non-specific action of the proteins present in the concentrate.

⁶ Levin, E., Kirsner, J. B., Palmer, W. L., and Butler, C., *Arch. Surg.*, in press.