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Absence of Response of Anemia of Myxedema to Liver Extract.

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The clinical manifestations of myxedema are enough like those of pernicious anemia to account for the fact that myxedema is more often mistaken for pernicious anemia than for any other disease. Myxedema may present a yellowish pallor, absence of weight loss, achlorhydria, anemia, color index about unity, parasthesias, difficulty in walking (not true postero-lateral sclerosis), increased serum bilirubin (indirect van den Bergh), leukopenia, urobilinogen in the urine, and remissions. Five cases have been reported in which myxedema and pernicious anemia co-existed in the same patient.[1, 2]

The possibility that there may be a decrease or absence of Castle's factor in the gastric secretion of patients with myxedema led us to determine the response to liver extract therapy of patients with myxedema. Five patients not reported here were similarly studied during 1930 and 1931 by Doctors F. N. Cole and A. S. Fourt in this hospital. No response was obtained in any case but the exact figures are not available.

The initial hemoglobin and erythrocyte levels were not low enough in some of the cases to permit of much increase in reticulocytes. In one case in which the initial hemoglobin value was 54% and the color index was unity, there was a reticulocyte response up to 5.2%, but this response lasted until the 24th day and did not correspond to the usual reticulocyte crisis. After 41 days of treatment the hemoglobin had not increased and the erythrocytes had increased but 500,000 per cu. mm. The patient received thyroid extract during the last days of this period. In the other patients there was neither a reticulocyte increase nor an increase in hemoglobin or erythrocytes.

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[1] Sturgis, C. C., and Isaacs, Raphael, *Proc. Cent. Soc. Clin. Res., J. Clin. Invest.*, 1930, **8**, 663.

[2] Means, J. H., Lerman, J., and Castle, W. B., *New Eng. J. Med.*, 1931, 204.

TABLE I.
Shows the lack of reticulocyte response to liver extract.

Case No.	Before Liver	No. of days after Liver																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	....	1.6	1.0	1.4	1.0	0.6	2.8	....	2.6	....	....	....	....	....	....	....	1.5	....	....	....	....	....	....	....	....
2	0.8	....	1.1	....	1.0	....	1.2	4.1	....	4.0	4.6	....	5.2	3.2	2.6	....	2.6	....	3.0	....	....	5.3	....	....	3.0
3	0.0	0.0	....	....	0.0	0.4	0.4	0.8	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.0	....	....
4	0.2	....	0.6	0.6	0.8	0.6	1.0	1.2	1.4	1.2	0.8	1.0	....	0.8	....	1.0	....	....	0.6	....	....	....	....	....	....
5	0.2	....	....	....	0.0	....	0.0	0.4	0.2	0.2	0.0	0.4	0.6	0.0	0.0	0.2	0.0	0.0	0.6	0.6	0.0	0.0	0.0	....	....
6	....	0.4	0.6	0.4	0.5	0.4	0.0	0.5	0.8	0.1	0.0	....	....	....	....	....	....	....	....	....	....	....	....	....	....
7	....	0.2	0.2	0.2	0.2	....	0.0	0.0	....	....	0.0	....	2.8	1.6	0.8	0.0	....	....	....	....	....	....	....	....	....
	....	0.6	0.4	0.4	0.8	0.6	....	0.2	0.2	0.6	0.4	....	....	....	....	....	....	....	....	....	....	....	....	....	....
8	....	0.0	0.6	0.2	0.0	....	0.0	....	....	....	0.0	....	0.6	2.2	0.6	1.4	....	....	....	....	....	....	....	....	....
9	1.4	0.8	0.6	1.2	0.6	0.8	1.6	2.0	2.0	0.2	3.0	....	....	....	....	....	....	....	....	....	....	....	....	....	....
11*	1.6	2.6	2.4	2.2	2.6	....	1.4	1.6	1.2	1.0	....	1.2	1.2	1.4	0.2	....	....	....	....	....	....	....	....	....	....

* Case 11. Anemia partly due to recent hemorrhage.

TABLE II.

Shows the van den Bergh reaction, free hydrochloric acid in the gastric juice, and the lack of response to liver extract.

Case	Before liver			van den Bergh	Daily liver dosage	Days receiving liver	Free HCl	After liver		
	Hgb.	RBC	Ret. %					Hgb.	RBC	Ret. %
1	83	4.2	1.6	2.0 Ind.	6 vials	10	normal			2.8
2	54	2.7	0.8	neg.	"	41	low after H	55	3.2	5.2
3	68	3.7	0.0	"	"	10	0	54	3.0	0.2
4	75	4.0	0.2	"	"	10	0	83		0.8
5	65	3.6	0.2		"	10	normal	64	3.5	0.6
6	72	3.8	0.4	1.2 Ind.	4 oz.	20		66	3.5	0.0
7	75	3.1	0.2	0.1 "	3 cc. S.C. every other day	14	0	74	3.4	2.8
	83	3.4	0.6		4 oz.	34		82	3.7	0.8
8	80	4.4	0.0		total 7 doses 3 cc. S.C.	10	normal			0.6
9	82	3.7	1.4		I.M 100 gm.	equivalent of 100 gm. intramuscular for 11 days	low	80	3.4	3.0
10	55	3.5		neg.	6 vials	13		55	2.9	
11*	20	2.5	1.6	"	12 cap Extra.	10	0	30	3.4	1.2

* Case 11. Anemia partly due to recent hemorrhage.

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Effect of Fluorine on Blood and Respiration.

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The interest of the authors in fluorine dates from the discovery by Ostrem, Nelson, Greenwood, and Wilhelm[1] of fluorine in the drinking waters of communities in the State of Iowa, with the resulting production of mottled enamel of the teeth. Smith, Lantz and Smith[2] have produced considerable evidence that excessive fluorine in water will cause mottled enamel in man. The question arises as to whether fluorine produces other harmful effects in the body.

The following work relates to the effect of fluorine on respiration, blood pressure, hemoglobin, blood calcium, blood phosphorus, and coagulation of blood. Sollmann[3] refers to the work of Tappeiner

[1] Ostrem, C. T., Nelson, V. E., Greenwood, D. A., and Wilhelm, H. A., *Science*, 1932, **76**, 575.

[2] Smith, M. C., Lantz, E. M., and Smith, H. V., *Ariz. Agr. Exp. Sta. Bull.*, 1931, **32**, 253.

[3] Sollmann, T., A manual of pharmacology, 1932, 898.