

Cerebrosides from Spleen and Brain from an Adult with Gaucher's Disease. (18296)

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The author(1) demonstrated that the cerebroside from the spleen obtained from an adult female with Gaucher's disease contained glucose rather than galactose. Similar reports have been reported by other workers (2-5). It appears that while the glucasido-form of cerebroside may not always be found in the spleen from a case of Gaucher's disease, such formation is peculiar to the Gaucher cells.

The present report deals with results of analyses of brain and spleen tissues obtained, within a few hours after death, from a 58-year-old female. The case presented certain anomalies but autopsy findings confirmed that the patient undoubtedly had Gaucher's disease.*

Analytical methods and results. Isolation of the cerebroside. The cerebroside was isolated by the methods described in the earlier work(1). The yields were not large but the materials appear to be pure, as shown by solubilities, melting points and nitrogen concentration. Total nitrogen was determined by the micro method of Tompkins and Kirk(6).

Identification of the carbohydrates. It was

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4. Polonovski, J., *Compt. rend. Acad. d. Sc.*, 1942, v215, 443.
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6. Tompkins, E. R., and Kirk, P. L., *J. Biol. Chem.*, 1942, v142, 477.

found in the earlier work(1) that if carbohydrate alone was to be split off from the cerebroside, the Kirk(7) semi-micro method yielded nearly theoretical results and good recoveries of added glucose and galactose. Therefore, this method was employed in the present work. Determinations were made of "free sugar" (reduction before hydrolysis), total carbohydrate found after hydrolysis and residual sugar following hydrolysis and yeast fermentation. The Somogyi modified blood sugar method(8) was employed. Determinations were by spectrophotometer[†] and results calculated from curves obtained with standard solutions of glucose and galactose.

Mucic acid tests. Solutions of the cerebroside were hydrolyzed and tests for mucic acid carried out on the filtrates.

Results of the analyses are presented in Table I. The losses of carbohydrate following fermentation demonstrated the presence of the glucasido-form of cerebroside from the spleen and the normal galactosido-cerebroside from the brain.

TABLE I. Cerebrosides from Spleen and Brain from an Adult with Gaucher's Disease.

	Spleen	Brain
<i>Cerebrosides</i>		
MP (178°C)	175, 176°C	176, 178°C
Nitrogen (1.73%)*	1.82, 1.92%	1.60, 1.68%
Free sugar %	1.2, 1.06%	0.8, 1.2%
<i>Following hydrolysis</i>		
Mucic acid test	Neg.	Pos.
Carbohydrate—% (22.2)*	15.1, 16.6%	19.0, 18.1%
Loss on fermentation	95.4, 96.0%	2.5, 5.5%
* Theoretical value.		

7. Kirk, E., *J. Biol. Chem.*, 1938, v123, 613.

8. Somogyi, M., *J. Biol. Chem.*, 1945, v160, 69.

[†] Coleman Jr., Model No. G.

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