

Dietary protein appears to be one of the most effective materials for the suppression of Cholesterosis.

The ratio of lecithin and total bile acid to Cholesterol decreased markedly, as the incidence of Cholesterosis increased.

Fomation of gallbladder Cholesterosis was inhibited by intramuscular administration of predonin.

120. SIGNIFICANCE OF THE MUCOPOLYSACCHARIDES IN CALCIUM CARBONATE STONE

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The present report deals with the histochemical and biochemical studies on the nature of the mucopolysaccharides which were thought to be the high molecular-weight organic substances in the calcium carbonate stone.

The acid mucopolysaccharides were found, histochemically by alcian blue staining, between crystals of calcium carbonate in net-work fashion diffusely scattered throughout the sectioned material. Similar distribution of sodium alginate was found in the calculus-like concretions of calcium carbonate, with this sodium alginate being one of acid polysaccharides used as a high molecular-weight organic substance. A study of calcium carbonate stone from human demonstrated a strong positive reaction with the colloidal iron staining and clear γ -metachromasia by the toluidine blue staining of Pearse or Ohno's method suggesting presence of sulfate mucopolysaccharides in this stone. Presence of neutral polysaccharides in this stone was suggested by PAS reaction and other histochemical stainings. Mucopolysaccharides also were chemically isolated and identified for the human calcium carbonate stone. The calcium carbonate stone contained neutral polysaccharides, chondroitin sulfate A, heparitin sulfate-like substance, heparin, and acid mucopolysaccharides that include uronic acid and sialic acid. A substance similar to a sulfate polysaccharide of unknown structure consisting of hexose, sialic acid as well as sulfate was identified. The mucopolysaccharides comprise about 3% of the calcium carbonate stone and at least 30% of the mucopolysaccharides was acid mucopolysaccharides with radicals.

In conclusion, human calcium carbonate stone included acid mucopolysaccharides with sulfate and carbonyl and it was suggested that these organic polyelectrolytes were quite important in bridging action of each calcium particle to form a calcium carbonate stone.

121. STUDIES ON GALLSTONES BY MEANS OF THE X-RAY DIFFRACTOMETER

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ABSTRACT

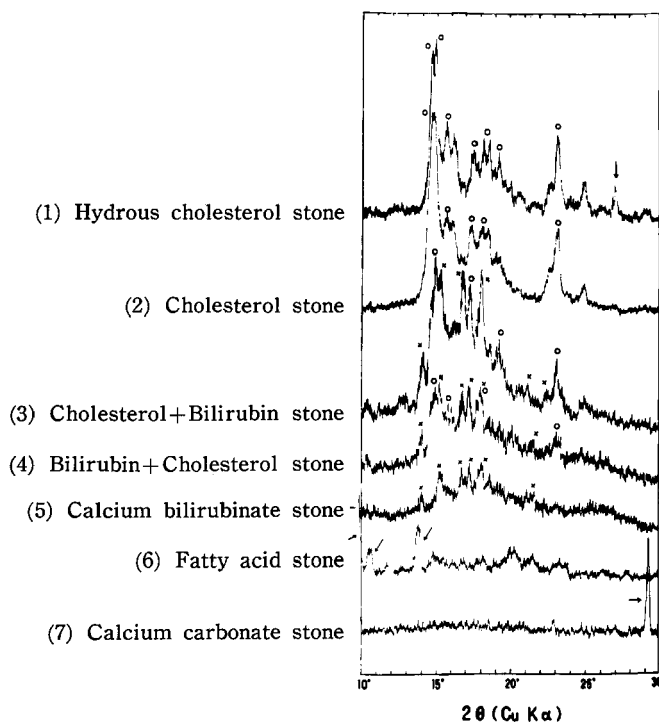
Powder X-ray diffractometer charts of 7 critical gallstones are shown in Figure 1, where some differences between cholesterol stone and calcium bilirubinate stone are confirmed at 2θ in 14.9° , 15.5° , 17° and 23.1° .

Hydrous cholesterol stone associated by cholesterol shows a splitting peak at 2θ in 14.6° and 14.9° , where the former peak is stronger than the latter of normal cholesterol stone.

A calcium carbonate stone shows an indicant peak at 2θ in 29.3° , and a fatty acid stone gives a distinct peak at 2θ in 13.8° .

206 diffraction charts of gallstone are shown in Table I, where variations of peak in intensity are found.

Figure 1. X-Ray Diffractometer Charts of Gallstones



○: Characteristic peak of Cholesterol
 ×: Characteristic peak of Calcium bilirubinate

Table 1. Analytic Results of Gallstones by means of the X-ray Diffractometer

Kinds of gallstone	No. of cases
1. Hydrous cholesterol stone	30
2. Cholesterol stone	23
3. Cholesterol+Bilirubin stone	39
Cholesterol+Calcium carbonate stone	31
Cholesterol+others	48
Subtotal	171 (83%)
4. Bilirubin Cholesterol stone	5
5. Calcium bilirubinate stone	22
Bilirubin+others	5
Subtotal	32 (15.5%)
6. Fatty acid stone	1 (0.5%)
7. Calcium carbonate stone	2 (1.0%)
Total	206