

SURGERY

Gall Bladder Removal

► **SURGICAL REMOVAL** of the gall bladder, called cholecystectomy, usually is sufficient to end trouble with gallstones, but in some cases symptoms persist after an operation.

Reasons for these post-operative symptoms range from swallowing air to an overlooked malignancy. Dr. J. Edward Berk, director of the department of medicine, Sinai Hospital, Detroit, told the eighth Hahnemann Symposium on Medical Considerations in the Surgical Patient in Philadelphia.

It is very seldom that a second operation is necessary for gallstones because X-rays can be taken on the operating table to show through radiopaque dye technique whether stones have been overlooked in the common duct. (The common bile duct is formed by the union of ducts from the gall bladder and liver.)

But additional stones do sometimes form in the common duct or liver without detection, and unless these stones pass normally a second operation may be necessary.

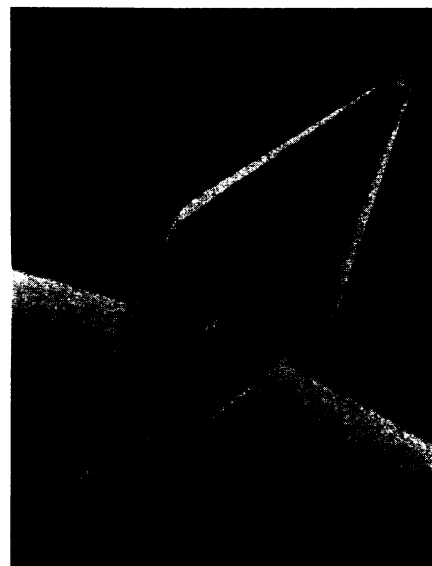
Incomplete or mistaken diagnosis sometimes occurs, so that although removal of

the diseased gall bladder is necessary, there are other coincidental problems at the time of the operation.

Cancer in the head of the pancreas, the large gland lying in a horizontal position across the back wall of the abdominal cavity, will interfere with drainage of the gall bladder nearby, and is sometimes not found at the time of gallstone removal. Pancreatitis, or inflammation of the pancreas, can also occur to complicate symptoms of the gall bladder patient.

Injuries to the bile duct by biliary fistulas can cause abnormal drainage, and passage of large stones into the small bowel can produce obstruction. Biliary dyskinesia, a condition in which spasms occur in the muscle surrounding the common bile duct, was also included by Dr. Berk as a post-operative pain symptom. Adhesions involving the stomach and duodenum may occur, but Dr. Berk pointed out that many symptoms may not be traceable to the operative procedure.

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Lockheed Missiles & Space

RIFT VEHICLE—This view extends five years into the future showing an artist's conception of the Reactor-In-Flight-Test vehicle firing after the Saturn booster has fallen away.

BIOCHEMISTRY

Insulin Synthesis Seen

► **SYNTHESIS** of insulin for the first time may be realized early in 1963, a Greek-born naturalized American citizen in the department of biochemistry at the University of Pittsburgh told **SCIENCE SERVICE**.

Dr. Panayotis G. Katsoyannis, who assisted in the synthesis of a hormone from the pituitary gland, is hopeful that the last problems are about to be solved in synthesis of the life-saving protein-hormone important to diabetic patients.

Chinese scientists, either in Shanghai or Peking, are believed to be working on the insulin-B chain containing 30 amino acid molecules that when joined with the A chain (containing 21 amino acid molecules) will produce insulin. Spurred by competition, Dr. Katsoyannis is working hard to arrive first at the point of synthesis.

Insulin now is obtained from purified material taken from the pancreas glands of slaughtered cattle, sheep and pigs. By synthesizing the protein-hormone, researchers will revolutionize its production.

One of the remaining problems is to accumulate large quantities of the various fragments that make up the structure of the A and B chains forming insulin. During purification, much material is lost. Another problem is the insolubility of fragments, Dr. Katsoyannis said.

"In science it is impossible to predict final accomplishment," he said. "We hope to announce success very soon, but this may take longer than we hope."

So far the Pittsburgh team has prepared a fragment containing ten amino acid molecules, one containing eight amino acid mole-

cules, the adjacent fragment containing seven, and the fragment next in sequence that contains five, which add up to the 30 amino acid molecules in the insulin-B chain.

"We will soon have the whole 21 amino acid molecules in the A chain," Dr. Katsoyannis said. "We have prepared a ten-amino acid fragment located at one end of the chain, and two other fragments adjacent to each other, containing four and five amino acid molecules. We now are working on two fragments containing nine and seven, which will complete the 21."

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PUBLIC HEALTH

Chickenpox Quarantines Due to Smallpox Scares

► **TO AVOID** confusion between the rash of chickenpox and smallpox, which has given the U.S. some bad scares on incoming planes from foreign countries, the President has proclaimed chickenpox a communicable disease at the request of Surgeon General Luther L. Terry of the U.S. Public Health Service.

On the same executive order, the President has made hemolytic streptococcal infections a generalized substitute for scarlet fever and streptococcal sore throat.

There are 26 communicable diseases reportable under Federal Law, among which are anthrax, diphtheria and meningitis. The six quarantinable diseases are: smallpox, yellow fever, cholera, plague, louse-borne typhus and louse-borne relapsing fever.

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BIOCHEMISTRY

Antibiotic for Infections Resistant to Penicillin

► **A CHEMICAL** breakthrough has been achieved with a drug which acts against infections that are resistant to penicillin.

The new development was the isolation of a central portion of the weak antibiotic, cephalosporin C. A derivative of this compound Cephalothin has been found highly effective against staphylococcal infections and Gram-negative bacteria which attack sections of the urinary tract. It is three times more effective against certain bacteria than penicillin G.

Previous attempts to break down the cephalosporin C molecule were done in the presence of water. Scientists at Eli Lilly and Co., Indianapolis, Ind., were able to obtain the active Cephalothin with the use of anhydrous reagents. This technique gives yields up to 40 percent of the active Cephalothin, the thiophene-2-acetyl derivative of 7-acylamido-cephalosporanic acid.

Cephalothin and furan-2-acetyl derivatives of cephalosporin are being tested by at least 25 clinics across the country in hopes of producing a safe, effective drug to fight human infection.

The cephalosporins have been known since 1956 when they were isolated by British scientists. They are similar to penicillin, but resist substances which would destroy penicillin drugs. The Cephalothins are, however, destroyed by acids in the stomach and cannot be administered orally.

The research at Eli Lilly and Co. was reported by organic chemists, Drs. Robert B. Morin, Edwin H. Flynn, Bill G. Jackson, Roger W. Roeske and others in *Chemical Week*, 91:45, 1962.

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