tract and if it is on the left lower part, decreased effective liver flow, and general cardiovascular disorder or proliferation of the liver stroma are suggested.

A Hepatic Function Test by Radioisotopes

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1) A method for estimation of the hepatic function were presented using radiogold (\(^{198}\)Au) and \(^{131}\)I labeled rose bengal dye.
2) Continuous recordings of external counting were performed by four scintillation counters (two of 2×3 \(\phi\) inches and two of 2×2 \(\phi\) inches NaI X tals) which were connected to pulse-height analyzers, rate meters and with a four channel tape-recorder and a two penrecorders. The probes were collimated with lead and one of them placed on a little up to the heart and the another on the right side of the liver.
3) The Radiogold was injected into the antecubital vein. Two curves (liver and heart) were analyzed by substraction each other to estimate the true \(^{198}\)Au concentration in blood and \(^{189}\)Au in liver. The blood samples being collected after injection, radioactivities of the samples were measured by a well-type scintillation counter. Comparing both data of calculating and blood sampling, this method seemed to be reliable.
4) Injecting \(^{131}\)I labeled rose bengal dye into antecubital vein and sampling bile from duodenum, the excretion of the dye was delayed in hepatitis compared to normal cases.
5) The curve obtained from a counter on the liver was expressed as a straight line on a bi-logarithmic paper, and some difference in slope was found between normal group and patients with liver diseases.

Classification of \(^{198}\)Au Liver Scintigram Patterns and Their Diagnostic Approach

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A new information of a relationship between the patterns of the \(^{198}\)Au liver scintigram and the liver diseases is reported. 631 liver scans by colloidal radiogold (\(^{198}\)Au) were performed on 517 patients during the period between May 1962 and July 1965. Established diagnosis were given on 301 patients by
1) autopsy
2) surgical exploration
3) needle biopsy or peritoneoscopy and
4) clinical course and clinical finding (followed up over 2 years).
301 liver scintigrams were classified into the following patterns in accordance with the size, shape, position and internal configuration of the liver and the degree of the spleen visualization.
1) Standard (pattern)
   25 of 33 cases which showed this pattern were proved to be normal.
2) Spleen visualization
3) Mild hypertrophy of the left lobe.
hepatic neoplasms but according to
4) Hypertrophy of the left lobe
   12 of 31 cases (39%) were the disease
   of bile duct system.
5) Hypertrophy of the left lobe and moderate
   visualization of the spleen.
   13 of 17 cases (76%) were postnecrotic
   hepatic cirrhosis.
6) Marked spleen visualization.
   All 3 cases were Banti’s syndrome.
7) Atrophy of the right lobe, hypertrophy
   of the left lobe and the spleen visualization.
   This is a typical pattern which we should like to emphasize.
   37 of 38 cases (97%) were exclusively
   postnecrotic hepatic cirrhosis.
8) Poor appearance of the liver, visualization
   of the spleen and the bone marrow.
   Three of four cases were postnecrotic
   hepatic cirrhosis.
9) Hypertrophy of the both lobes.
   Generally no diagnostic specificity in
   this pattern but in mottled appearance
   of this pattern 6 of 7 cases were prob-
   ed to be metastatic hepatic cancer. In
   the moderate visualization of the
   spleen in addition to hypertrophy of
   the both lobes, 4 of 6 cases were
   hepatic cirrhosis.
10) A huge filling defect
    55% of this pattern were primary
    hepatic cancer.
11) A solitary filling defect
    90% of this pattern were malignant
    this pattern no one could not differ-
    entiate whether primary or secondary.
12) Multiple filling defect
    79% of this pattern were metastatic
    hepatic cancer.
    As a rare case a hepatic tuberculosis
    and a polycystic disease of the liver
    showing this pattern were found out.
13) Other interesting cases
    Complete defect of the left lobe were
    seen in two benign tumor, hemangiom
    and cyst.
    Huge defect of the right lobe and
    hypertrophy of the left lobe were noticed
    in two cases, the first of hemangiom
    of the liver and the second of the
    case with left lobectomy of the liver.
    Liver is easily movable in position and
    changeable in shape by extrinsic fac-
    tors such as abdominal mass, ascites or
    plural effusion.
    It should be emphasized that not only
    the localized liver diseases but also the
    diffuse diseases to some extent could
    be diagnosed according to the size,
    shape and position of the liver and the
    intra-and extra-hepatic distribution of
    $^{198}$Au.
    For example, when the typical pattern
    of atrophy of the right lobe, hyper-
    trophy of the left lobe and visualization
    of the spleen is obtained, we may
    diagnose the case as postnecrotic
    cirrhosis.

**A Preliminary Study on the $^{131}$I Rose Bengal Test for the Liver Function**

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The $^{131}$I rose bengal ($^{131}$I RB) test for the liver function was reported by many investiga-

tors as one of the excellent method to secure of the liver function. Some analytical
methods of the liver uptake and excretion curve of $^{131}$I RB were also reported. How-
ever, above mentioned methods could not analyze enough the uptake and excretion

curves of the liver under the pathological conditions.

In this report, an analytical method of the

$^{131}$I RB uptake and excretion curves of the

rabbit liver was examined on the materials

of the normal and X-ray irradiated condi-

tions.

Experimental method and results were as