

WANDERING LIVER AND  
TACHYCARDIA

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## Wandering Liver and Tachycardia

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This report is prompted by a patient whom we treated recently for right upper quadrant pain and liver enlargement which was apparent only when the patient was erect. Despite exhaustive studies and consultations the true nature of the disease in this patient was not discovered until an exploratory laparotomy had been performed.

A partial review of the literature and of recent textbooks reveals few references to this subject. It is my impression that most physicians are unaware of the possibility of hepatoptosis and do not include this condition in their differential diagnosis of right upper quadrant liver enlargement and pain.

A profound discussion of hepatoptosis is found in the *Index of Differential Diagnosis* by French.<sup>1</sup> The description given by French is so well done that I do not feel I could improve upon it by paraphrasing him. He states:

*Hepatoptosis* and *wandering liver* are terms applied to a liver which leaves its normal position. A liver which is only displaced may erroneously be thought to be enlarged. Extreme degrees are met with in cases of general visceroptosis. It is commoner in women than men, and mostly after forty. The abdominal walls are usually pendulous, and as the abdominal muscles are powerful agents for keeping the abdominal viscera in place, this weakness, combined with a laxity of the hepatic ligaments, is probably the cause of the hepatoptosis. Tight lacing leads to weakness of the abdominal muscles, as well as pressing the liver down. It is flattened, often extending to the umbilicus, with its greatest prominence near the lower part and on the right. It may form a protrusion of the abdominal walls; it is easily palpable, moves up and down with respiration, and can usually be pushed back into its normal position when the patient lies down; indeed, when the patient is in the supine position it sometimes goes back of its own accord, only to fall again when she stands up.

There may be no symptoms, but the patient usually complains of a dragging pain and a heaviness in the hepatic region. These are much worse in the erect posture, so that she may have always to lie down. Often, sudden attacks of pain occur in the right of the abdomen; these may be due to gall-stones or to a movable kidney, both often present with hepatoptosis, or to kinking of the bile-duct, which may lead to jaundice. As the abdominal muscles are weak, the blood stagnates in the abdominal vessels in the erect posture; hence faintness, palpitation, exhaustion, and dyspnea on exertion are common, these symptoms passing away when the patient lies down.

CASE REPORT

Mrs. R. W., age 45 years, a farmer's wife, had been seen for complaints of vague epigastric pain off and on since September, 1956; the pain was not relieved by food or antacids. Roentgenographic studies of her stomach, small and large intestines, kidneys, and gallbladder were all normal. She received routine medications for gastritis, with poor results.

On Sept. 29, 1956, I noted that her liver was two fingers down and slightly tender. A pelvic examination was negative at this time. She continued to complain of epigastric pain and in October she was tender over the duodenum but the liver was not palpable. In November, she complained of more pain in the right upper quadrant and complained of being tired. At this time, I found her liver enlarged to three fingers below the right subcostal border. It was very tender with a sharp edge. I admitted her to the hospital on this occasion for re-evaluation for possible chronic hepatitis. In the hospital, however, her liver was palpable only when she had been up and about; when she was in bed for a day, the liver was not palpable.

In the hospital, her heart rate ranged from 70 to 130. Most of the time, when I examined her, it ranged from 100 to 132. Her Decholin circulation time was 12 seconds. A fluoroscopy of the chest showed no enlargement of any chambers of the heart and no fixation of the heart. There were no murmurs. There was never at any time any sign of cardiac decompensation or angina pectoris.

After she was ambulant, her liver became palpable again and she complained more of tachycardia. She was discharged from the hospital in spite of her continuing tachycardia. Then, when I saw her in the office on November 23, her liver was very definitely enlarged to three fingers below the right costal margin and was very tender with a sharp edge.

In view of this picture of a transient, painful hepatomegaly, aggravated by the erect position, and a transient tachycardia with a sinus rhythm, this patient was investigated very thoroughly. A radioactive iodine study was normal. A therapeutic trial of digitalis produced no results. Electrocardiograms were normal. All laboratory tests, including a protein-bound iodine, calcium, phosphorus, cephaloflocculation, thymol turbidity, total cholesterol, and Bromsulphalein retention, were normal. The basal metabolic rate was normal. A urine test for carcinoid tumor was normal.

*Past History.*—A review of her past history revealed the same baffling train of symptoms and signs. She had an appendectomy in 1928. She had a thyroidectomy in 1935, supposedly for Graves' disease with fairly classical symptoms preceding it. A cesarean section was done in 1936, for her fourth delivery because she was told her heart "would not stand labor." And finally, in 1952, a hysterectomy was done for a prolapsed uterus.

At the time of her thyroidectomy, in 1935, she suffered from tachycardia and weakness which, although somewhat benefited by the operation, led her to return to Illinois from Colorado in 1937, one year following the cesarean section. From 1937 to 1943, she was given digitalis to be taken when needed, one pill at a time, but it was never taken over a sustained period.

Beginning in 1948, she began to suffer from attacks of severe tachycardia which would finally lead to considerable weakness and dyspnea and taper off gradually. She felt "worn out" most of the time and was hospitalized four times within a period of one year. She was given quinidine following these hospitalizations, for tachycardia, without good results.

Finally, we performed an exploratory laparotomy in January, 1957, for the transient hepatomegaly.\* No abnormalities of any of the internal organs were found, except that the liver was more freely movable than normal and the surgeon could pull that organ down into the abdomen easily. A large liver biopsy was performed for the purpose of ruling out intrahepatic tumors and chronic hepatitis. The microscopic studies on the biopsy material revealed normal liver architecture.

The patient withstood the operation well and since that time has been treated with an abdominal support which tends to hold her liver up under her right thoracic cage. She has all her old symptoms, including the weakness and tachycardia, when she does not wear her abdominal support. When she does wear her abdominal support, she can work in her household with less

\*Surgeon: W. F. Utterman, M.D., Perryville, Mo.

discomfort. Heavy lifting, however, still causes right upper quadrant pain and tachycardia in spite of the support. Her tachycardia is less frequent now but there is no clear-cut relationship between this symptom and the liver pain. The tachycardia occurs both at rest and on exertion and may last from moments to hours.

#### COMMENT

This is a report of a case of transient hepatomegaly, transient tachycardia, and right upper quadrant pain due to hepatoptosis in a normal, 45-year-old white woman.

In reviewing the details of this case, as the events have evolved during observation and therapy, it becomes apparent that her "wandering liver" has been responsible for most of her signs and symptoms for the past 20 years. Certainly, the appearance of a large, tender liver after assuming the erect position was due to hepatoptosis. The constant dragging, right upper quadrant pain, which became so annoying to the patient that she was unable to do her housework, was due to the hepatoptosis. The episodes of tachycardia, dizziness, and faintness at odd intervals for many years were due probably to the same condition. The descent of the liver, as mentioned by French, produces circulatory changes which result in tachycardia and other circulatory symptoms. Possibly, these circulatory signs are reflex in nature. It would appear possible, also, that there might be a mechanical factor involved.

This patient was studied from all possible viewpoints with the idea of discovering some occult cardiac disease, such as chronic myocarditis, thyrotoxicosis, tricuspid stenosis and insufficiency, and chronic adhesive pericarditis. All of these diagnoses and all other known cardiac diseases were satisfactorily ruled out. Also, we are convinced that none of the symptoms is psychosomatic in origin.

The logical conclusion, therefore, is that the patient's spurious cardiac condition was secondary to the circulatory changes produced by her hepatoptosis.

#### SUMMARY

A case of hepatoptosis resulting in right upper quadrant pain and attacks of sinus tachycardia is presented. Hepatoptosis can lead to the erroneous diagnoses of hepatomegaly, other intra-abdominal disease, and cardiac disease.

Hepatoptosis should be included in the differential diagnosis of all cases of hepatomegaly and in all other cases of epigastric and right upper quadrant distress. It should be included also in the differential diagnosis of sinus tachycardia of uncertain origin.

Hepatoptosis can be treated by the use of a proper abdominal support.

#### REFERENCE

1. French, H.: *Index of Differential Diagnosis*, Ed. 6, Bristol, England, 1945, John Wright & Sons, Ltd., p. 472.