What is the Difference Between Hemochromatosis and Hemosiderosis

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The **key difference between hemochromatosis and hemosiderosis** is that hemochromatosis is the systemic deposition of iron (https://www.differencebetween.com/difference-between-iron-and-vs-hemoglobin/#Iron) that causes tissue damages in the body, while hemosiderosis is the focal deposition of iron that does not cause any tissue damages in the human body.

Hemochromatosis and hemosiderosis are two iron deposition diseases. Adults usually lose 1mg iron per day from epidermal (https://www.differencebetween.com/difference-between-guard-cell-and-vs-epidermal-cell/) and gastrointestinal cells. Menstruating women lose an additional 0.5 to 1 mg iron per day from menses. This iron loss is balanced by absorption of iron around 10 to 20 mg in a typical diet. Iron absorption is regulated based on the iron stores in the body. Since there is no physiologic mechanism to remove iron from the body, the excess iron absorbed is deposited in tissues.

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What is Hemochromatosis?

Hemochromatosis is the systemic deposition of iron that cause tissue damages in the human body. We also call this an **iron overload**. This condition is often genetic. It can cause serious damages to the heart, liver, and pancreas. Too much iron can be toxic. In the heart, it can cause arrhythmia (https://www.differencebetween.com/difference-between-arrhythmia-and-dysrhythmia/) and heart failure. Too much iron in the liver can lead to cirrhosis (https://www.differencebetween.com/difference-between-fibrosis-and-vs-cirrhosis/#Cirrhosis), enlarged liver, liver cancer, and liver failure. In addition, it can also cause arthritis, diabetes, problems in the spleen, pituitary gland, adrenal gland, gall bladder, thyroid, and reproductive system. An iron overload can cause the skin to look more gray or bronze. Hemochromatosis is fairly common, and it affects more than a million Americans.

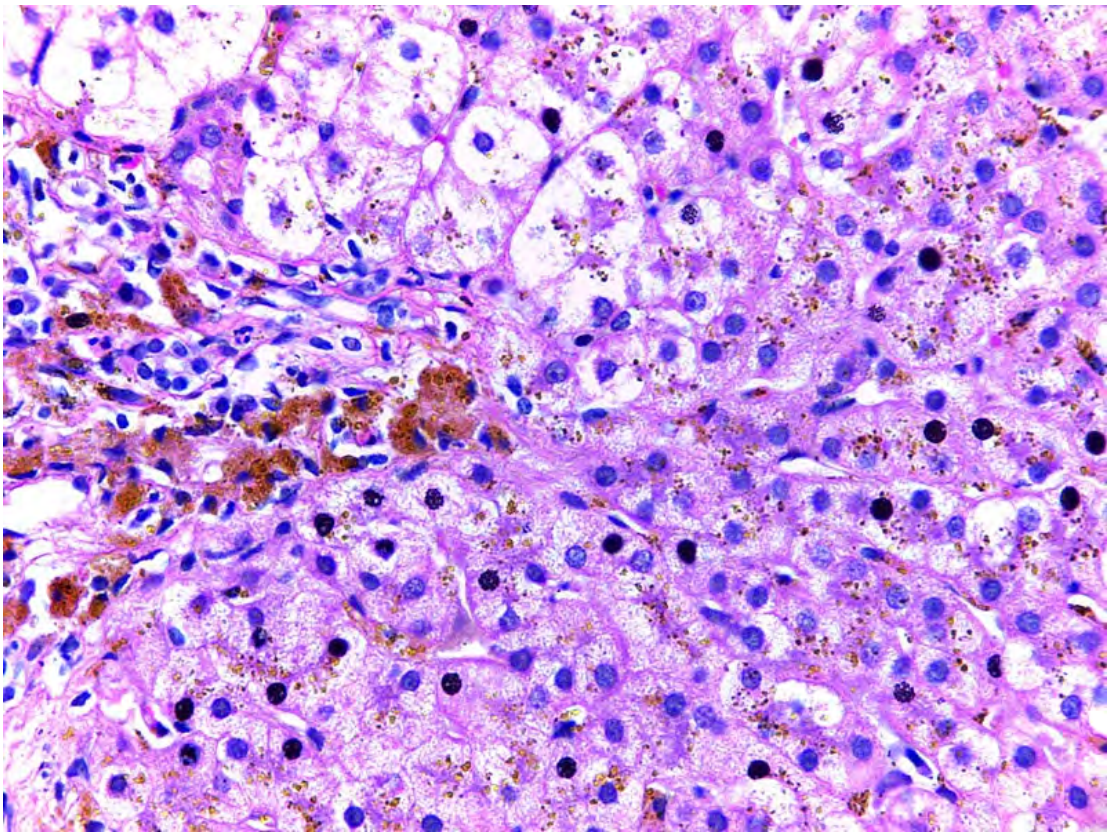

Figure 01: Micrograph of Hemochromatosis Liver

There are two types of hemochromatosis: they are hereditary (primary) and secondary. **Hereditary hemochromatosis** is due to a mutation of several genes such as *HFE*, *HJV*, *HAMP*, and *SLC40A1*. On the other hand, **secondary hemochromatosis** is due to medical treatments or other medical conditions like anemia, blood transfusion, iron pills, kidney dialysis, hepatitis C infection, and fatty liver disease. Symptoms of

hemochromatosis may include fatigue, heart flutters, iron fist, joint pain, stomach pain, and unexplained weight loss. This condition is usually diagnosed through blood tests, genetic tests, liver biopsies, and MRI. Furthermore, the treatments may include changes to diet, iron chelation therapy, and therapeutic phlebotomy.

What is Hemosiderosis?

Hemosiderosis is the focal deposition of iron that does not cause any tissue damages in the human body. It is a form of iron overload disorder resulting in the accumulation of hemosiderin. In this condition, the iron liberated from extravasated red blood cells is deposited within the organ and significant hemosiderin deposits may eventually develop in that organ. Chronic inflammatory syndromes such as non-alcoholic fatty liver disease and metabolic syndrome can cause hemosiderosis.

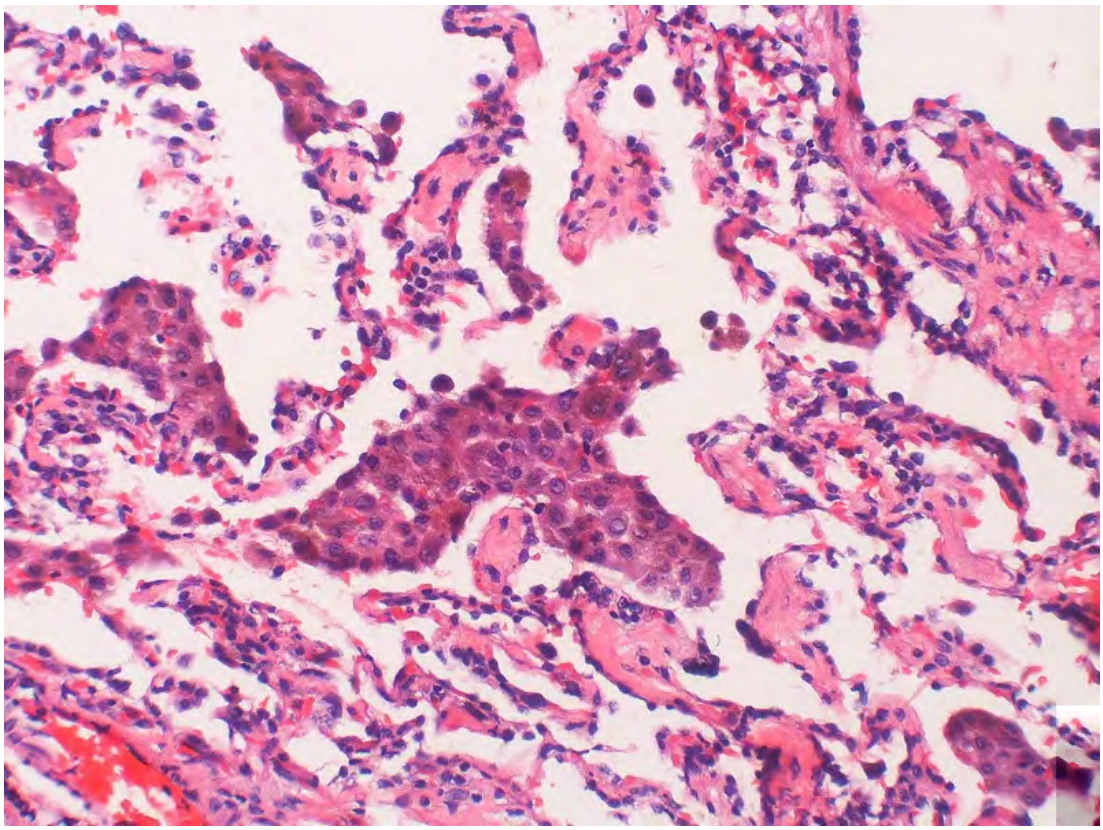

Figure 02: Hemosiderosis

Hemosiderosis can be divided into three types: transfusion hemosiderosis, idiopathic pulmonary hemosiderosis, and transfusional diabetes hemosiderosis. Symptoms of this condition may include coughing, difficulty in breathing, fatigue, shortness of breath, pain in the body, wheezing, and slow growth in children. There are several tests to diagnose this condition: serum ferritin, liver biopsy and MRI. Furthermore, the

treatments may include iron chelation therapy, stopping blood transfusions, corticosteroids for bleeding in the lungs, oxygen therapy for lung conditions, anticoagulants for pulmonary hypertension and lung transplants.

What are the Similarities Between Hemochromatosis and Hemosiderosis?

- Hemochromatosis and hemosiderosis are two iron deposition diseases.
- Both are iron overload conditions.
- The liver and heart are affected by both conditions.
- They are treatable medical conditions.
- Both conditions can be caused due to blood transfusion.

What is the Difference Between Hemochromatosis and Hemosiderosis?

Hemochromatosis is the systemic deposition of iron that causes tissue damages in the human body, while hemosiderosis is the focal deposition of iron that does not cause any tissue damages in the human body. So, this is the key difference between hemochromatosis and hemosiderosis. Furthermore, the accumulation of hemosiderin is not seen in hemochromatosis. But, accumulation of hemosiderin is seen in hemosiderosis.

The below infographic lists the differences between hemochromatosis and hemosiderosis in tabular form for side by side comparison.

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Summary – Hemochromatosis vs Hemosiderosis

Iron is a mineral the human body needs for growth and development. Hemochromatosis and hemosiderosis are two iron deposition diseases. Hemochromatosis is the systemic deposition of iron that does cause tissue damages in the human body, while hemosiderosis is the focal deposition of iron that does not cause any tissue damages in the human body. Thus, this is the key difference between hemochromatosis and hemosiderosis.

Reference:

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2. "Hemochromatosis (https://www.mayoclinic.org/diseases-conditions/hemochromatosis/symptoms-causes/syc-20351443)." Mayo Clinic, Mayo Foundation for Medical Education and Research, 30 Dec. 2020.

Image Courtesy:

1. "Hemochromatosis Liver 40x (https://commons.wikimedia.org/w/index.php?curid=44955377)" By Calicut Medical College – DEPARTMENT OF PATHOLOGY (CC BY-SA 4.0) (https://creativecommons.org/licenses/by-sa/4.0) via Commons Wikimedia
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