Stomach Cancer

Gastric cancer is most commonly caused by adenocarcinoma, which comprises over 90% of all stomach cancers. Early symptoms like dysphagia and dyspepsia resemble chronic gastritis and as a result, the tumor is often diagnosed at advanced stages when symptoms like weight loss, anorexia, altered bowel movements, and hemorrhage occur. There are <u>two main types of gastric cancer</u>: Intestinal, and diffuse. Intestinal type is associated with environmental risk factors and has a better prognosis, while the diffuse type is rapidly invasive with a worse prognosis. Intestinal type risk factors include the ingestion of smoked foods that contain nitrosamine, achlorhydria, H. pylori infection, and type A blood. Diffuse type cancers are typified by signet-ring cells, which are cells that have large mucin vacuoles that expand the cytoplasm and push the nucleus to the periphery. When there are large areas of infiltration, diffuse rugal flattening can occur and a rigid, thickened wall causes the stomach to resemble a leather bottle, leading to the term linitis plastica. For both types of cancer, the depth of invasion and extent of nodal involvement and distal metastasis is the most powerful prognostic indicator of disease. Sometimes, individuals may present with a velvety plaque in the flexural areas and neck, which is sometimes indicative of an underlying malignancy. In advanced cases, gastric carcinoma can first be detected with enlargement of the left supraclavicular sentinel lymph node called Virchow's node. These tumors can also metastasize to the periumbilical region, forming a subcutaneous nodule called a Sister Mary Joseph nodule. Classically, stomach cancers can also have bilateral metastasis to the ovaries, termed a Krukenberg tumor.



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Adenocarcinoma
Add (+) car-gnome
There are <u>two main types of gastric cancer</u>: Intestinal, and diffuse. Both are adenocarcinomas, which is the most common etiology of gastric cancer. Intestinal type is associated with environmental risk factors and has a better prognosis, while diffuse type is rapidly invasive with a worse prognosis.

Intestinal Type

Intestinal Type
Intestines
Intestinal type gastric cancer is associated with environmental risk factors and has a better prognosis.

Smoked Foods Containing Nitrosamines
BBQ-smoker and Nitrous-tank
Nitrosamines are a chemical compound found in certain foods including preserved fish and smoked foods that are carcinogenic and have a positive association with intestinal-type gastric cancer.

Achlorhydria
Acorn-hydra
Achlorhydria refers to absent production of gastric acid in the stomach, commonly caused by loss of parietal cells due to autoimmune destruction. Achlorhydria is a risk factor for intestinal-type gastric carcinoma, possibly due to chronic inflammation of the stomach tissue.

Type A Blood
A-apple Blood Cell
Individuals with type A blood have been shown to be at higher risk of stomach cancer although the mechanism is unknown.

Helicobacter pylori
Helicopter-bacteria
Helicobacter pylori is a gram-negative bacteria that burrows below the stomach's mucus layer and produces urease, which breaks down urea in the stomach to ammonia. The ammonia helps neutralize gastric acid and create an alkaline environment which leaves the stomach susceptible to damage. Chronic H. pylori infection can have complications of gastric adenocarcinoma and MALT lymphomas. It is a strong risk factor for intestinal-type cancer, and less so for diffuse type.

Diffuse Type

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Diffuse Type
D-fuse
Diffuse type is the second main type of stomach cancer. Diffuse type is more invasive and malignant, and has a worse prognosis.

Signet Ring Cells
Signet Ring
Diffuse type cancer is characterized by an infiltrative growth pattern. Signet ring cells are classically seen, which are cells that have large mucin vacuoles that expand the cytoplasm and push the nucleus to the periphery.

Linitis Plastica (Leather Bottle Stomach)
Plastic-bottles in Leather-bag
Diffuse type gastric cancer can pathologically present with linitis plastica. This describes large areas of infiltration causing diffuse rugal flattening and a rigid, thickened wall of the stomach. The stomach then resembles a leather bottle, leading to the term linitis plastica.

Assessment

Acanthosis Nigricans
A-candle-lit Nigerian-king
Acanthosis nigricans is a skin disorder characterized by hyperpigmented, velvety plaques in flexural areas and the neck. Common associations include insulin resistance, obesity, and can also present as a paraneoplastic syndrome associated with gastric cancer.

Left Supraclavicular Lymph Node
Lymph-limes in Left Supraclavicular Region
In advanced cases, gastric carcinoma can first be detected with enlargement of the left supraclavicular sentinel lymph node called Virchow's node.

Virchow's Node
V-Chow-Chows
In advanced cases, gastric carcinoma can first be detected with enlargement of the left supraclavicular sentinel lymph node called Virchow's node.

Subcutaneous Periumbilical Mets
Pear-umbrella with Belly-button
These tumors can also metastasize to the periumbilical region, forming a subcutaneous nodule called a Sister Mary Joseph nodule.

Sister Mary Joseph's Nodule
Mary-Poppins
These tumors can metastasize to the periumbilical region, forming a subcutaneous nodule called a Sister Mary Joseph nodule.

Complications

Bilateral mets to ovaries
Ovaries
Krukenberg tumors refer to malignancies of the ovary caused by metastasis from a primary site. Over 80% of Krukenberg tumors affect bilateral ovaries. Classically, these tumors arise from the gastrointestinal tract including the stomach.

Krukenberg's tumor
Crook-burger
Krukenberg tumors refer to malignancies of the ovary caused by metastasis from a primary site. Over 80% of Krukenberg tumors affect bilateral ovaries. Classically, these tumors arise from the gastrointestinal tract including the stomach.

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