SHORT COMMUNICATION

Brief note on embolization

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INTRODUCTION

Embolization, relate to the passage and lodging of an embolus within the bloodstream. It may be of natural origin (pathological), where it is called an embolism, for example a pulmonary embolism; or it may be artificially induced (therapeutic), as a hemostatic treatment for bleeding or as a treatment for some types of cancers by intentionally blocking the blood vessels to starve the tumor cells [1].

Besides blocking the blood supply to the tumor, the embolus also often includes an ingredient to attack the tumor with irradiation or with chemicals. Chemoembolization is a procedure or a process where the blood supply to a tumor is blocked once the blood vessels near the tumor are given anticancer drugs. Transcatheter arterial chemoembolization is a procedure done in interventional radiology where we restrict the tumor's blood supply and it is the usual form. Selective internal radiation therapy or radioembolization is a type of treatment used to destroy liver tumors or cancer that has spread to the liver [2].

Embolization involves blocking of blood vessels or selective occlusion of blood vessels by explicitly launches emboli [1,2].

Embolization helps in treating an extensive variety of conditions affecting different organs of the human body [2,3].

The treatment for embolization leads to slow or stop blood supply thus decrease the size of the tumor: [3,4].

- Kidney lesions
- Liver lesions, typically hepatocellular carcinoma (HCC). Treated either by particle infarction or transcatheter arterial chemoembolization (TACE).
- Uterine fibroids
- Arteriovenous malformations (AVMs)
- Juvenile Nasopharyngeal Angiofibroma

Coughing up of blood or blood-stained mucus from the bronchi, larynx, trachea, or lungs is called Hemoptysis. In simple words, it is the airway bleeding. This can occur with lung cancer, infections such as tuberculosis, bronchitis, or pneumonia, and certain cardiovascular conditions. The danger comes from choking, rather than blood loss [1,4].

Diagnosis for Hemoptysis, are as follows [1,3,4].

Depend on family history, past history, history of present illness,

History of chronic bronchitis, mitral stenosis, tuberculosis, bronchiectasis, etc.

History of cigarette smoking, occupational diseases by exposure to silica dust, etc.

Blood

duration, amount, frequency

Amounts of blood: large amounts of blood, or is there blood-streaked sputum

The probable source of bleeding: Is the blood vomited, or coughed up?

Bloody sputum

Color, characters: blood-streaked, bloody gelatinous, fresh blood, frothy pink.

Accompanying symptoms

Fever, chest pain, coughing, purulent sputum, mucocutaneous bleeding, jaundice.

Imaging examination

Chest X-ray, 3D reconstruction images CT scan and or CT virtual bronchoscopy, bronchial angiography.

Laboratory tests

blood test: White Blood Cells

Sputum: cells and bacterial examinations, sputum culture

Bronchial fiber endoscopy: Test that examines the airways.

Treatments include iced saline and topical vasoconstrictors such as adrenalin or vasopressin. Tranexamic acid was proved to stabilize in-hospital mortality. Selective bronchial intubation can be used to crumple the lung that is bleeding. Also, endobronchial tamponade can be utilized. Laser photocoagulation can be used to stop bleeding during bronchoscopy. Angiography of bronchial arteries can be performed to locate the bleeding, and it can often be embolized. Bronchial artery embolization (BAE) is the first-line treatment nowadays. A surgical option is usually the last resort and can involve removal of a lung lobe or removal of the entire lung. Cough suppressants lead to an increase in the risk of choking [3,4].

An intracranial aneurysm, well known as a brain aneurysm, is a cerebrovascular disorder in which weakness in the wall of a cerebral artery or vein causes a localized dilation or ballooning of the blood vessel [3].

Aneurysms in the posterior circulation (basilar artery, vertebral arteries and posterior communicating artery) have a higher risk of fracture. Basilar artery aneurysms represent only 3%–5% of all intracranial aneurysms but are commonly aneurysms in the posterior circulation [3,4].

Before a larger aneurysm ruptures, the person may experience various symptoms such as sudden and unusual headache, nausea, vision impairment, vomiting, and loss of consciousness, or might not experience any symptoms at all [3,4].

CONCLUSION

First introduced by Sadek Hilal in 1968, embolization is a slight invasive surgical technique. The purpose is to prevent blood flow to an area of the body, which can effectively shrink a tumor or block an aneurysm.

The procedure moves out as an endovascular procedure by an interventional radiologist in an interventional suite. Most of the patients have treatment with little or no sedation and this mainly depends on the organ to be embolized. Patients who undergo cerebral embolization or portal vein embolization are usually given a general anesthetic.

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