

Different Techniques used in Surgical Pathology Analysis

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DESCRIPTION

Surgical pathology is the area of anatomical pathology that deals with the biopsies and gross specimens that are provided by doctors and other healthcare providers. Surgical pathology is the most significant and time-consuming specialty for the majority of anatomical pathologists. Surgical pathology encompasses both the gross and microscopic evaluation of surgical specimens, as well as biopsies performed by both surgeons and non-surgeons such as general practitioners, medical subspecialists, dermatologists, and interventional radiologists. The study of surgical pathology encompasses both the gross and microscopic evaluation of surgical specimens, as well as biopsies performed by both surgeons and non-surgeons such as general practitioners, medical subspecialists, dermatologists, and interventional radiologists. One of the modern methods for assessing tissue and cell samples is molecular diagnostics (DNA/RNA analysis). This requires examining DNA and proteins in the blood and tissues.

A definitive diagnosis of the condition is made possible by surgical pathology when tissue is surgically removed from a patient. A combination of physical (macroscopic) and histological (microscopic) examination of the tissue is often used to do this. It could also entail doing immunohistochemistry tests or other laboratory analyses to evaluate the molecular features of the tissue. The two main specimen types submitted for surgical pathology investigation are surgical resections and biopsies.

Biopsy

A biopsy is a tiny piece of tissue that is taken for surgical pathology examination, usually to make a certain diagnosis. One sort of biopsy is a core biopsy, which is carried out using large-bore needles and occasionally radiological techniques such as ultrasonography, Computed Tomography (CT) scan, or Magnetic Resonance Imaging (MRI). Core biopsies retain tissue in comparison to fine-needle aspiration specimens, which are examined utilizing cytopathology techniques. Postoperative biopsies are taken during diagnostic surgical procedures that remove a part of a suspicious lesion, whereas excisional biopsies are obtained through therapeutic surgical resections that completely remove the tumor. Excisional biopsies are routinely performed on gastrointestinal polyps and skin abnormalities. A pathologist's examination of a sample is essential for determining

whether a tumor is benign or malignant. The pathologist is able to differentiate between different cancer kinds and grades as well as assess the activation of certain molecular pathways in the tumor. The patient's prognosis and the best course of therapy depend heavily on this information. In addition to cancer, biopsies can be used to identify inflammatory, infectious, or idiopathic disorders of the skin, gastrointestinal system, and other organs.

Surgical resection

Surgical resection specimens (and possibly several organs) are acquired by surgically removing a whole sick region or organ. These procedures are often intended to be the last surgical step in the management of a condition for which the diagnosis is known or very likely. However, pathological examination of these specimens is necessary to confirm the initial diagnosis, to determine the extent of malignant disease, to ascertain whether the entire diseased area was removed (a process known as "determination of the surgical margin," frequently involving frozen section), to ascertain the presence of unsuspected concurrent diseases, and to provide information for postoperative treatment, such as adjuvant chemotherapy in the case of cancer. A surgical resection's surgical margin can be calculated using the bread loafing technique, also known as Complete Circumferential Peripheral and Deep Margin Assessment (CCPDMA). A particular kind of CCPDMA is used after a general surgeon or the Mohs surgical method.

CONCLUSION

Surgical pathology offers a definitive diagnosis of illness when tissue is surgically removed from a patient. Excisional biopsies often focus on skin lesions and gastrointestinal polyps. To determine if a tumor is benign or malignant, a pathologist must analyze a biopsy sample. However, a pathological examination of these specimens is necessary to confirm the initial diagnosis, to determine the extent of malignant disease, to determine whether or not the entire diseased area was removed (a process known as "determination of the surgical margin," frequently involving frozen section), to detect the presence of unsuspected concurrent diseases, and to provide information for post-operative treatment, such as adjuvant chemotherapy in the cases of cancer. The surgical margin of a surgical resection may be calculated using the bread loafing technique, also known as CCPDMA.

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