



Understanding Needle Biopsy: A Minimally Invasive Diagnostic Procedure

Sowjanya Roy*

Department of Radiology, Yale University, USA

DESCRIPTION

A needle biopsy is a medical procedure used to obtain tissue or fluid samples from the body for diagnostic purposes. It is a minimally invasive technique that allows healthcare professionals to gather crucial information about the nature of a lump, mass, or abnormal area in the body without resorting to more invasive procedures. This article delves into the intricacies of needle biopsy, its types, applications, and the significance it holds in modern medicine. A needle biopsy involves the insertion of a thin needle into the targeted area of the body to extract a small tissue or fluid sample. This sample is then examined under a microscope by a pathologist to determine the presence, nature, and extent of any abnormalities, such as cancer or other diseases. The procedure is typically guided by imaging techniques like ultrasound, X-ray, or computed tomography (CT) scan to ensure precision and accuracy. There are several types of needle biopsy, each suitable for specific situations and anatomical locations: FNA involves using a thin, hollow needle to extract a small sample of cells or fluid from a lump or mass. This type of biopsy is often used to diagnose cysts, thyroid nodules, or lymph nodes. CNB employs a larger, hollow needle to remove a core of tissue from the affected area. This technique allows for a more substantial tissue sample, providing a better understanding of the tissue architecture and the nature of any abnormalities. This technique uses a vacuum-powered device to collect multiple tissue samples during a single insertion of the needle. It is particularly useful for diagnosing breast abnormalities. Image-guided biopsy employs imaging techniques like ultrasound, X-ray, or CT scan to precisely guide the needle to the targeted area, ensuring accurate sample collection. Needle biopsy is a vital tool in diagnosing various medical conditions. Some common applications include: Needle biopsy is

instrumental in the diagnosis and staging of cancers, enabling oncologists to plan appropriate treatment strategies. It helps in assessing irregularities such as lumps, masses, or lesions in various organs like the breast, liver, lung, prostate, and thyroid. Needle biopsy can aid in diagnosing infectious conditions by collecting tissue samples for analysis and identification of pathogens. Needle biopsies performed at different stages of a disease provide valuable insights into disease progression and response to treatment. Needle biopsy offers several advantages, including: Needle biopsy is less invasive than surgical procedures, reducing trauma and recovery time for the patient. Guided by imaging, needle biopsy offers high precision and accuracy in targeting the affected area, resulting in reliable diagnostic information. Early detection of diseases like cancer through needle biopsy facilitates timely intervention and improves treatment outcomes. Needle biopsy is generally more cost-effective than surgical biopsies, making it a preferred choice for both patients and healthcare systems. Needle biopsy has revolutionized the field of diagnostic medicine by offering a less invasive yet highly accurate method for obtaining tissue and fluid samples. Its applications in cancer diagnosis, disease monitoring, and assessment of tissue abnormalities are crucial in providing patients with prompt and appropriate medical care. As technology continues to advance, needle biopsy procedures are becoming even more refined and reliable, further enhancing their role in modern healthcare.

ACKNOWLEDGEMENT

None.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

Received:	30-August-2023	Manuscript No:	IPJIIR-23-17986
Editor assigned:	01-September-2023	PreQC No:	IPJIIR-23-17986 (PQ)
Reviewed:	15-September-2023	QC No:	IPJIIR-23-17986
Revised:	20-September-2023	Manuscript No:	IPJIIR-23-17986 (R)
Published:	27-September-2023	DOI:	10.21767/2471-8564.6.3.25

Corresponding author Sowjanya Roy, Department of Radiology, Yale University, USA, E-mail: sowji@gmail.com

Citation Roy S (2023) Understanding Needle Biopsy: A Minimally Invasive Diagnostic Procedure. J Imaging Interv Radiol. 6:25.

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