AJPMHS
GLOBAL RESEARCH NETWORK

AMERICAN Journal of Pediatric Medicine and Health Sciences
Volume 01, Issue 09, 2023 ISSN (E): 2993-2149

Advantages of Stereotaxic Breast Biopsy over Core Breast Biopsy

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Abstract: Currently, the commonly used breast biopsy methods are stereotactic biopsy and core biopsy. Each of these methods has its own advantages and disadvantages. This article focuses on the advantages of stereotactic biopsy over core breast biopsy.

Keywords: breast cancer, breast screening, mammography, stereotactic biopsy, core biopsy, breast microcalcifications.

Introduction. When performing a core biopsy under ultrasound guidance, difficulties may arise in determining the exact localization of the tumor process, which in turn makes it difficult for radiologists and mammologists to take the required amount of material for subsequent morphological verification. This, in turn, leads to the fact that morphologists find it difficult to determine the histostructure of the tumor due to insufficient biopsy material[13,17,2]. In particular, these difficulties are manifested by the small size of the process and the localization of the process in the intraductal lumen. Stereotactic biopsy is used to obtain material from suspicious nonpalpable lesions identified on breast mammography that are not visible on ultrasound. Early tissue verification in patients at the initial stages of breast cancer development allows for the creation of an early treatment strategy**.** Preoperative image-guided biopsy of breast lesions is a well-established step in the diagnostic algorithm for both screen-detected and symptomatic breast lesions. Real-time visualization of the biopsy needle crossing the lesion, absence of ionizing radiation, greater patient comfort, short procedure time and lower costs are some of the important advantages of ultrasound-guided core biopsy [1; 10]. But due to a sufficient number of shortcomings of this method, many institutions have begun to widely use more modern and accurate methods, which include stereotactic biopsy. The safety and reliability of stereotactic biopsy are now well established [2; 3].Breast lesions detected on mammography that appear suspicious require tissue diagnosis to plan further treatment. If lesions are visible on ultrasound, ultrasound-guided biopsy is preferable [2]. However, sometimes these lesions or abnormalities are not visible on ultrasound at all, or even if they are visible, they are not clear enough to warrant an ultrasound-guided biopsy. This is especially true for microcalcifications detected mammographically [4; 9]. Worldwide, the most common breast lesion is microcalcification. Screening programs in many countries have led to an increase in the detection of microcalcifications, which are often a feature of DCIS, and stereotactic biopsy is the most common method for their evaluation [11,12].Thus, stereotactic biopsy is used for suspicious nonpalpable lesions identified by mammography but not visible by ultrasound [2,5].Even some palpable lesions may benefit from stereotactic biopsy, especially those that are not clearly palpable, small, deep, or difficult to see on ultrasound but are better seen on mammograms [5,8,9].Before the biopsy, an optional stereotactic localization device can be installed on the mammography machine, which converts a standard mammography machine into a stereotactic biopsy device [6]. Since the same machine is used for both mammography and

biopsy, visualization of the lesion during biopsy is good as the resolution and image quality remain the same [7,23,30]. Stereotactic biopsy is a method of precisely positioning a needle and collecting a sample from a lesion after calculating the three-dimensional coordinates of the lesion. The X and Y coordinates of the center of the lesion to be biopsied are readily available on 2D mammography images. Basic trigonometry is used to determine the X, Y, and Z axes of the lesion to be biopsied [8,15,40]. This value is calculated by computer software using information from markings made by the operator on the computer screen and simulates depth perception performed by the human brain[19,21,39].

Materials and methods. Advantages of stereotactic biopsy:

1. Increased accuracy:

- Stereotactic biopsy allows precise localization and sampling of breast lesions under mammography guidance, allowing for accurate tissue sampling.
- Three-dimensional imaging technology used in stereotactic biopsy provides more detailed and accurate information about the lesion compared to core biopsy.

2. Reducing invasiveness and complications:

- Stereotactic biopsy is a minimally invasive procedure that requires only a small incision area, resulting in minimal scarring and reduced post-procedural discomfort.
- Compared with core biopsy, stereotactic biopsy has a lower risk of complications such as hematoma formation or infection at the procedure site.

3. Increased patient comfort:

- Stereotactic biopsy is usually performed under local anesthesia, which allows patients to remain awake during the procedure.
- The shorter duration of the stereotactic biopsy procedure compared to core biopsy improves patient comfort.

4. Comprehensive sampling:

- Stereotactic biopsy allows samples to be taken from multiple lesion sites, providing a comprehensive assessment of the tissue.
- Punch biopsies can sometimes miss certain areas of the lesion, leading to incomplete sampling and potential diagnostic problems.

5. Suitable for non-palpable lesions:

- Stereotactic biopsy is particularly effective for nonpalpable breast lesions as it allows precise targeting and sampling without the need for surgical excision, especially when sampling microcalcifications.
- Core biopsy may require additional imaging guidance or even surgical excision for nonpalpable lesions.

Results. Stereotactic biopsy has several advantages over core biopsy of breast lesions. It has a well-established role in biopsy of lesions that are only visible on mammograms, thereby minimizing the number of open surgical biopsies. Increased accuracy, reduced morbidity, increased patient comfort, comprehensive sampling, and suitability for nonpalpable lesions make it an effective diagnostic method. However, the choice between stereotactic biopsy and core biopsy should be based on individual patient factors and lesion characteristics. Health care providers must carefully evaluate the advantages and limitations of each approach to provide the best care for patients with breast lesions.

REFERENCES

1. American College of Radiology. ACR practice parameter for the performance of ultrasound-guided percutaneous breast interventional procedures. [accessed on July 31, 2021]. Available from: https://www.acr.org/-/media/acr/files/practice-parameters/us-guidedbreast.pdf
2. O'Flynn EA, Wilson AR, Michell MJ. Image-guided breast biopsy:State-of-the-art. Clin Radiol. 2010;65:259–70. [PubMed] [Google Scholar]
3. Association for Breast Surgery. Best practice guidelines for surgeons in breast cancer screening. [accessed on July 31, 2021]. Avaiable from: https://associationofbreastsurgery.org.uk/media/64276/final-screening-guidelines-2018.pdf .
4. **С**охибова З.Р. Фертил ёшдаги аёлларда полидефицитли ҳолатларни тажрибада аниқлаш // Тиббиётда янги кун журнали. 9(47) Бухоро, 2022.- Б. 151–156;
5. Akhmedova N.Sh., Sokhibova Z.R, Ulug'ova Sh.T.Features of change in indicators of macro- and microelement status of the organism in women of fertilized age with anemiya of iron deficiency. The American Journal of Medical Sciences and Pharmaceutical Research. 2021, № 3(02), – P. 140-145.
6. Sokhibova Z.R., Xalikova F.Sh.Occurrence of Pain Syndrome Due to Osteoparosis in Patients with вreast Cancer Internatsional jornal on orance technology 2021Volume: 9 (03)P 79-84
7. Soxibova Z.R., Turdiev M.R. Some features of laboratory indicators of micro- and macroelementary condition of the organism of female age women innormality and iron deficiency. The American Journal of Medical Sciences and Pharmaceutical Research. 2021, № 3(04), – P. 200-205
8. Sokhibova Ziyoda Rakhmonovna., Akhmedova Nilufar Sharipovna, Boltaev Kamol Jumaevich. Some features of laboratory indicators of micro- and microelementary condition of the organism of female age women innormality and iron deficiency. // Биомедицина ва амалиёт журнали. 2020. Махсус сон. – P. 238–244.
9. Sokhibova Z.R., Akhmedova N.Sh. Characteristics of exchange of essential microelements of copper and zinc in healithy fertilized women and women with combined copper and zinc deficiency state. // European journal of molecular ,Clinical medicine №7 (01) 2020. P-3332-3335.
10. Sokhibova Z.R., Boltaev K.J.,Turdiev M.R. The ratio between the main hematopoietic trace elements (Fe, Cu, Zn) in anemia in women of childbearing age. // Journal of Pharmaceutical Negative Results. Volume 13. Special lssue 9. 2022. P 2678-2680
11. Sohibova Z.R., Turdiyev M.R. Identification of Cases of Polydeficiency in vomen of fertile Age in the Experience//Research journal of trauma and disability studies. Vol-1. 2022. P. 101-108.
12. Soxibova Z.R.Fertil yoshdagi ayollarda normal va temir tanqisligi xolatida mikro va makro elementlar laboratoriya ko'rsatkichlarining ayrim xususiyatlari // Oriental renaissance :Innovative,educatsional natural and social sciences scientific journal. – Volume 1. №8. 2021. – CP 406–414.
13. Sohibova Z.R. Different Laboratory Indicators of Micro and Macro-Elementary Status of the Normal and Innormal Organizm of Females in Iron Deficiency // European multidisciplinary journal of modern science. Volume- :4 2022, - P. 337-343.
14. Sohibova Z.R. Some features of laboratory indicators of micro-and macroelementary condition of the organism of female age women in normality and in iron deficiency// World medicine journal №1 (1)2021 P. 860-864.

15. Nasriddinov B.Z., Soxibova Z.R. Ultrasound Examination as an Important Part of Clinical Diagnostics. International Journal of Health Systems and Medical Sciences. Volume 2, No 9, Sep -2023. P-75-78. https://inter-publishing.com/index.php/IJHSMS/article/view/2527

16. Jonibekov J.J., Ismailova M.Kh. Role of computer tomography in diagnostics of coronaviral etiology of pneumonia // Journal of Hunan University (Natural Sciences). – July 2021. – Vol. 48. – No. 7. – P.110-117.

17. Jonibekov J.J. The Role of Computed Tomography in Pneumonia in Patients with Associated Coronavirus Infection // Middle European Scientific Bulletin. – 2021. – T. 13. – P. 252-256. SJIF 2021.

18. Jonibekov J.J., Ismailova M.Kh. Diagnostic capabilities of ultrasound diagnostics of lung changes in the causative agent of coronavirus infection compared to CT. // International journal of social science & interdisciplinary research. – 2022. – T. 11. – C. 62-63. ISSN: 2277-3630

19. Jonibekov J.J., Ismailova M.Kh. Preventive measures andmodern therapy of coronavirus infection European journal of modern medicine and practice. – 2022. – Vol. 2. – No. 1. – P. 31-35. SJIF 2022.

20. Jonibekov J.J., Ismailova M.Kh. Headache and other Neurological Symptoms in the Structure of the New Clinical Picture Corona Virus Infection (Covid-19) International Journal of Culture and Modernity ISSN 2697-2131, Volume 12. – P. 22-32.

21. Жонибеков Ж.Ж., Исмаилова М.Х., Нишанова Ю.Х., Ходжамова Г.А. Компьютерная томография при поражении легких у пациентов с подозрением на наличие коронавирусной инфекции (COVID-19) Клиническая и экспериментальная онкология. – 2021. – №3(17) – С. 24-31.

22. Жонибеков Ж. Ж. Мультимодальная лучевая диагностика пневмонии при новой коронавирусной инфекции (Covid-19). Tibbiyotda yangi kun. – 2021. – Т. 2. – С. 34.

23. Турдиев М. Р., Махмудова Г. Ф. Морфофункциональные изменения, происходящие в селезенке в результате действия внешних и внутренних факторов //Тиббиётда янги кун. – 2022. – №. 11. – С. 49.

24. Turdiyev M. R., Sokhibova Z. R. Morphometric characteristics of the Spleen of white rats in normal and in chronic Radiation Disease //The american journal of medical sciences and pharmaceutical research. – 2021. – Т. 3. – №. 02. – С. 146-154.

25. Turdiev M. R., Teshaev S. J. Comparative characteristics of the spleen of white rats in normal and chronic radiation sickness //Chief Editor. – Т. 7. – №. 11.

26. Turdiyev M. R. Teshayev Sh //J. Morphometric Assessment of Functional Immunomorphology of White Rat Spleen in the Age Aspect American Journal of Medicine and Medical Sciences. – 2019. – Т. 9. – №. 12. – С. 523-526.

27. Турдиев М. Р. и др. ЧАСТОТА РАСПРОСТРАНЕНИЯ РАКА МОЛОЧНОЙ ЖЕЛЕЗЫ В БУХАРСКОЙ ОБЛАСТИ //Молодежный инновационный вестник. – 2015. – Т. 4. – №. 1. – С. 267-268.

28. Turdiev M. R. Teshaev Sh. J. Comparative characteristics of the morphological and morphometric parameters of the spleen of white rats in normal conditions, chronic radiation sickness and correction with a biostimulant //Problems of biology and Medicine. – 2020. – №. 4. – С. 120.

29. Турдиев М. Р., Сохибова З. Р. Этиологические факторы острых аллергических состояний у детей, проживающих в условиях города Бухары //Новый день в медицины. – 2018. – №. 3. – С. 23.

30. Турдиев М. Р. Морфофункционалные особенности селезенки белых крыс в норме и при хронической лучевой болезни //Новый день в медицине.–2020.–3 (31)–С. – С. 734-737.

31. Guljamol F., M. ., & F. Sh., X. . (2022). Pathomorphological Changes Occurring in the Spleen as a Result of External and Internal Factors. International journal of health systems and medical sciences, 1(5), 132–137.

32. Fazliddinovna, M. G. . (2023). Oncopsychology of Patients with Breast Cancer after Treatment. Scholastic: Journal of Natural and Medical Education, 2(2), 111–116.

33. Uygunovich N. A., & F., M. G. (2023). Morphofunctional Changes of the Spleen Under the Influence of Various Factors in Postnatal Ontogenesis. Web of Semantic: Universal Journal on Innovative Education, 2(5), 228–233.

34. Turdiyev M. R., Sanoyev B. A. Pathologi of the afterbirth during 2020 in the Bukhara regional perinatal center //Eurasian Journal of Medical and Natural sciences. Volume1. – 2021. – №. 2.

35. Turdiev M. R. et al. ChASTOTA RASPROSTRANENIYa RAKA MOLOChNOY ZhELEZY V BUKhARSKOY OBLASTI //Молодежный инновационный вестник. – 2015. – Т. 4. – №. 1. – С. 267-268.

36. Turdiev M. R. Morphological and morphometric parameters of lymphoid Structures of the Srleen of white rats in Postnatal ontogenesis in Dynamics of Age. European multidisciplinary journal of modern science. Volume 4, 2022. – P-319-326.

37. Turdiyev M. R. Morphological and Orthometric Parameters of lymphoid Structures of the Spleen of white rats //Central Asian Journal of Medical and Natural Scienses. Volume. – Т. 2.

38. Turdiyev M. R. Morphometric Indicators of Morphological Structures of the White Rats Spleen in Postnatal Ontogenesis //Web of Synergy: International Interdisciplinary Research Journal. – 2023. – Т. 2. – №. 4. – С. 576-580.

39. Turdiyev M. R., Boboeva R. R. CHOLERETIC ACTIVITY OF RUTANA AT THERAPEUTIC APPLICATION IN RATS WITH HELIOTRIN HEPATITIS //Oriental renaissance: Innovative, educational, natural and social sciences. – 2021. – Т. 1. – №. 8. – С. 644-653.

40. Турдиев М. Р. Морфофункциональные Изменения Лимфоидных Структур Селезенки Белых Крыс В Постнатальном Онтогенезе В Динамике Возраста //AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI. – 2023. – Т. 2. – №. 5. – С. 188-192.

41. Turdiev M. R. Morphofunctional Changes in Lymphoid Structures of the Spleen of White Rats in Postnatal Ontogenesis in the Dynamics of Age //Web of Synergy: International Interdisciplinary Research Journal. – 2023. – Т. 2. – №. 5. – С. 144-148.

42. Rustamovich T. M. et al. Edematous Breast Cancer Problems of Diagnosis and Treatment //Research Journal of Trauma and Disability Studies. – 2022. – Т. 1. – №. 10. – С. 93-100.

43. Turdiev M. R. Histological Analysis of the Spleen of White Rats in Postnatal Ontogenesis //Research Journal of Trauma and Disability Studies. – 2022. – Т. 1. – №. 10. – С. 135-141.

44. Rustamovich T. M. Morphological and Orthometric Parameters of Lymphoid Structures of the Spleen of White Rats //Central Asian Journal of Medical and Natural Science. – 2021. – Т. 2. – №. 5. – С. 122-128.