

History of fine needle aspiration biopsy as a diagnostic technique in Puerto Rico

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Fine needle aspiration biopsy (BACAF or FNAB) is a simple, minimally invasive, and accurate method for diagnosing superficial masses. A small gauge needle is used, with which a representative sample of the tissue to be studied is obtained. This material is processed with cytological techniques and reviewed under the microscope by a pathologist.

Fine needle aspiration in history

The beginnings of this technique date back to the 11th century, when the Arab doctor Abulcasis described how with a hollow needle he could obtain a sample of the thyroid gland to differentiate a “sebaceous” mass from a vascular mass. The modern history of BA-CAF begins in the 1920s in the United States, when Drs. Hayes Martin and James Ewing at New York Memorial Hospital created an extensive case base. This fell into disuse due to resistance from their peers. In the 1950s the technique was perfected at Karolinska Hospital in Sweden, by Dr. Joseph Zajicek and his group. In the 1970s, this technique was reintroduced in the United States, and, since then, it has been established within the diagnostic protocol of thyroid gland, breast, lymph node, salivary gland, and other lesions.

Fine needle aspiration in Puerto Rico

While it was not until 1991 when cytopathology was accepted by the ACGME (accreditation body for medical specialties in the United States) as a subspecialty of pathology, fine needle aspiration biopsy had already been used as a diagnostic method since 1981 for nodules of the thyroid gland at the Hospital Universitario de Distrito (UDH) and at the Hospital Municipal de San Juan. In 1983, Dr. Claudio Renjifo published a series of 24 cases in which he obtained a sensitivity of 43%, mainly because he did not have the necessary technical support. After acquiring more experience with these techniques, the group led by Doctors José H. Martínez and José L. Riestra (Endocrinology, Hospital Municipal de San Juan), Dr. Francisco Aguiló (Endocrinology, Hospital Universitario de Distrito), Dr. Guillermo Villarmarzo (Pathology) and Dr. Enrique Vázquez-Quintana (Surgery) published in 1986 a series of articles collecting the experience of 146 cases in which a fine needle aspiration biopsy was performed by palpation in nodules suspects, whose results were compared with the histopathological diagnosis after surgical excision. The reported sensitivity was 93% and the specificity was 79%.

In more recent times, the fine needle aspiration biopsy has become a diagnostic standard for palpable masses in Puerto Rico. In 2010, Dr. Guillermo Villarmarzo and his group published the results of the experience in 37,961 nodules biopsied between 2005 and 2009, obtaining a sensitivity and specificity of 96% and 100%, respectively.

Conclusion

Over time, new techniques have been integrated to improve diagnostic sensitivity. Technologies such as sonographic guidance, immunohistochemistry, flow cytometry and molecular tests –to define diagnosis and prognosis– have opened new horizons in this field.

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