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ORIGINAL ARTICLE

Usefulness of GATA-3 as a marker of seminal epithelium in prostate biopsies☆

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Abstract
Objectives: The incidental presence of seminal vesicle epithelium in prostate needle biopsies is generally recognizable through routine microscopy. However, it can sometimes be erroneously interpreted as malignant due to its architectural and cytological characteristics, and immunohistochemistry can be useful for correctly identifying the seminal epithelium. Our objective was to analyze the potential usefulness of GATA-3 as a marker of seminal epithelium.
Material and methods: Through immunohistochemistry with a monoclonal anti-GATA-3 antibody (clone L50-823), we studied seminal vesicle sections from 20 prostatectomy specimens, 12 prostate needle biopsies that contained seminal vesicle tissue and 68 prostate biopsies without seminal vesicle epithelium, 36 of which showed adenocarcinoma.
Results: Staining for GATA-3 was intense in the 20 seminal vesicles of the prostatectomy specimens and in the 12 prostate needle biopsies that contained seminal epithelium. In the 60 biopsies without a seminal vesicle, GATA-3 was positive in the prostate basal cells and even in the secretory cells (57 cases), although with less intensity in 55 of the cases. One of the 36 prostatic adenocarcinomas tested positive for GATA-3.
Conclusions: The intense immunohistochemical expression of GATA-3 in the seminal vesicle epithelium can help identify it in prostate biopsies. This marker is also positive in the basal cells of healthy prostates and, with less intensity, in the secretory cells. Positivity, weak or moderate, is observed on rare occasions in prostatic adenocarcinomas.

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PALABRAS CLAVE
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Utilidad de GATA-3 como marcador de epitelio seminal en las biopsias de próstata

Resumen

Objetivos: La presencia incidental de epitelio de la vesícula seminal en las biopsias por aguja de próstata es generalmente reconocible mediante el estudio microscópico de rutina. Sin embargo, en ocasiones, se puede interpretar erróneamente como maligno debido a sus características arquitecturales y citológicas, y la inmunohistoquímica puede ser útil para identificarlo correctamente. Nuestro objetivo ha sido analizar la posible utilidad de GATA-3 como marcador de epitelio seminal.

Material y métodos: Se han estudiado mediante inmunohistoquímica con un anticuerpo monoclonal anti-GATA-3 (clon L50-823) secciones de vesícula seminal procedentes de 20 piezas de prostatectomía, 12 biopsias por aguja de la próstata que contenían tejido de vesícula seminal y 68 biopsias de próstata sin epitelio de vesícula seminal, 36 de las cuales presentaban adenocarcinoma.

Resultados: La tinción para GATA-3 fue intensa en las 20 vesículas seminales de las piezas de prostatectomía y en las 12 biopsias por aguja de próstata que contenían epitelio seminal. En las 60 biopsias sin vesícula seminal GATA-3 fue positiva en las células basales de la próstata, e incluso en las células secretoras (57 casos), aunque con menor intensidad en 55 de los casos. Uno de los 36 adenocarcinomas prostáticos fue GATA-3 positivo.

Conclusiones: La expresión inmunohistoquímica intensa de GATA-3 en el epitelio de la vesícula seminal puede ayudar a identificarlo en las biopsias prostáticas. Este marcador también es positivo en las células basales de la próstata normal y, con menor intensidad, en las secretoras. Raramente se observa positividad, débil o moderada, en adenocarcinomas prostáticos.

Introduction

The incidental presence of seminal vesicle epithelium or ejaculatory duct in prostate needle biopsies is generally recognizable by routine microscopic examination with usual hematoxylin–eosin staining. However, sometimes the seminal vesicle epithelium can be misinterpreted as malignant due to its architectural and, and above all, cytological characteristics, by the presence of large and hyperchromatic nuclei that can be interpreted as atypia in prostate glandular epithelial cells.[1–7] A variety of immunohistochemical staining (IHC) may be useful in differentiating seminal vesicle epithelium from the epithelium in the prostate gland: basal cell markers (high molecular weight cytokeratins, p63), MUC6, PAX8, alpha-methylacyl-coenzyme A-racemase (AMACR), or markers of prostatic origin.[7,8]

Over the last few years, GATA-3 has received special attention as a marker of carcinomas of urothelial and mammary origin.[9] In subsequent studies, it has also been observed that GATA-3 can be found in other neoplasms and in a variety of normal tissues including, according to some studies, seminal vesicle.[10,11]

The aim of this study is to analyze, by IHC, GATA-3 in the seminal vesicle, both in surgical pieces and needle biopsies. GATA-3 expression will be compared with that of benign and malignant prostate glandular epithelial cells in order to determine if GATA-3 may help the identification of seminal epithelium.

Material and methods

Sections of tissue fixed routinely in formaldehyde and paraffin embedded were examined using IHC. They corresponded to seminal vesicles sections (20 cases from radical prostatectomy specimens and 12 prostate needle biopsies that have incidentally presented areas of seminal vesicle tissue). We also studied 68 prostate needle biopsies without seminal vesicle epithelium, 36 of which showed acinar (usual) adenocarcinoma.

A prediluted monoclonal antibody (clone L50-823, Cell Marque) was used with the IHC method of peroxidase-conjugated multimer amplified (Optiview, Ventana) using an automated immunohistochemistry staining (Benchmark Ultra, Ventana Medical Systems, Inc., Tucson, AZ). The antigenic unmasking was performed by heat in autostainer Ultra CC1 buffer reaching a maximum temperature of 95° C for 40 min.

The staining intensity was assessed under the microscope as negative (0), or weak positive (+), moderate (++) or strong (+++).

Results

- Seminal vesicle samples from radical prostatectomy specimens: GATA-3 staining was intense (+++) in all 20 cases, both in basal and secretory cells (Fig. 1).