



Case Report

A case of pure foamy gland carcinoma of prostate on needle core biopsy

Padmanabhan Anitha¹, Kale Kshitija^{1,*}, Gadgil Nitin M¹, Gwalani Dhansha¹

¹Dept. of Pathology, Lokmanya Tilak Municipal Medical College and Sion Hospital, Mumbai, Maharashtra, India



ARTICLE INFO

Article history:

Received 08-01-2020

Accepted 10-01-2020

Available online 25-05-2020

Keywords:

Qualitative

School children

Nutritional awareness

Dietary habits

ABSTRACT

Pure foamy gland carcinoma in prostate needle biopsy is seldom encountered. Majority of the prostatic carcinoma cases are acinar type adenocarcinoma. The features of classic acinar adenocarcinoma like large nuclei, prominent nucleoli and infiltrative pattern are not seen in most of the cases of foamy gland carcinoma. Foamy gland carcinoma (FGC) is composed of cells with characteristic abundant foamy cytoplasm and low N:C ratio. These low-grade FGC can mimic benign prostatic glands and thus serve as a diagnostic challenge. We here report a case of pure foamy gland variant of adenocarcinoma diagnosed on TRUS biopsy.

© 2020 Published by Innovative Publication. This is an open access article under the CC BY-NC-ND license (<https://creativecommons.org/licenses/by/4.0/>)

1. Introduction

Majority of the prostatic carcinoma cases are acinar type adenocarcinoma. There are few rare histological subtypes of prostatic adenocarcinoma. One of them is foamy gland adenocarcinoma (FGC) which was first described by Epstein and Nelson in 1996.¹ It is composed of cells with abundant xanthomatous cytoplasm and low N:C ratio. The features of classic acinar adenocarcinoma like large nuclei, prominent nucleoli and infiltrative pattern are not seen in most of the cases of foamy gland carcinoma. This variant can pose a diagnostic challenge as the low-grade nuclear features can resemble normal prostate glands especially in trans rectal ultrasound (TRUS) biopsies.

2. Case Report

A 70-year old male presented with increased frequency of micturition with dysuria in the past 1 month. Ultrasonography revealed a prostatic volume of 67 grams. Serum Prostate specific antigen (PSA) levels were 33.63 ng/ml. Per-rectal examination revealed a firm to hard prostate. A 12-core TRUS biopsy was performed. Per-

rectal examination revealed a firm to hard prostate. Histopathological examination showed malignant cells forming acini and infiltrating the stroma (Figure 1). Individual cells had abundant foamy cytoplasm, pyknotic nucleus and inconspicuous nucleoli (Figure 2). Focal cells showed high grade nuclear features (Figure 3). Nine out of 12 cores sent were involved. The core involvement varied from 10–90% (overall 70% of core volume); and the Gleason Score was 4 + 4; Gleason grade group 4. Perineural involvement, lymphovascular emboli, extra prostatic extensions were not noted. Immunohistochemistry for Alpha methyl acyl coenzyme A Racemase (AMACR) was strongly positive (Figure 4).

We signed out the report as foamy cell variant of adenocarcinoma prostate. Our patient was advised radical prostatectomy but could not undergo surgery owing to his age and other co-morbidities.

3. Discussion

Foamy gland carcinoma (FGC) of prostate is a histological variant of adenocarcinoma prostate which is composed of cells with characteristic abundant foamy cytoplasm and low N:C ratio. The nuclear features of classic acinar adenocarcinoma and the infiltrative pattern are not seen

* Corresponding author.

E-mail address: mrudulakm@gmail.com (K. Kshitija).

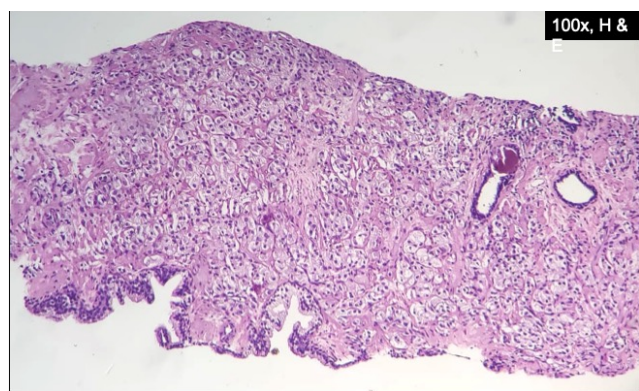


Fig. 1: (100x, H & E) Prostatic needle biopsy showing foamy cells infiltrating most of the core

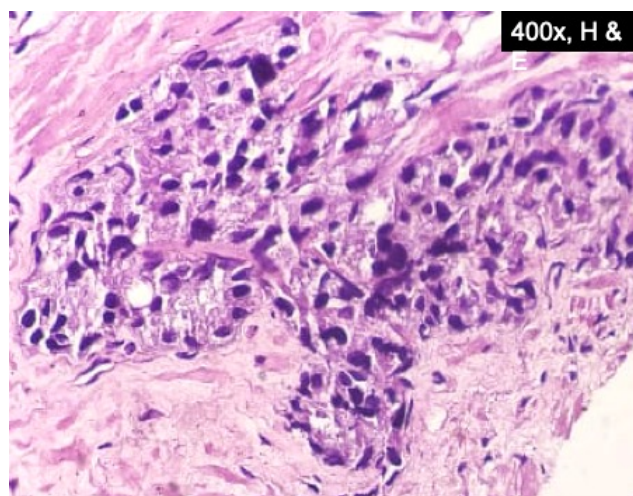


Fig. 3: (400 x, H & E) Foamy gland carcinoma showing high grade nuclear features focally

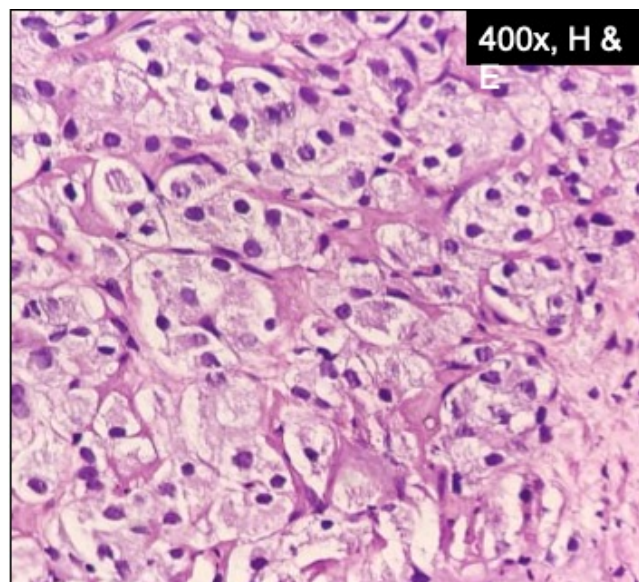


Fig. 2: (400 x, H &E) Foamy cells showing abundant clear cytoplasm and pyknotic nucleus

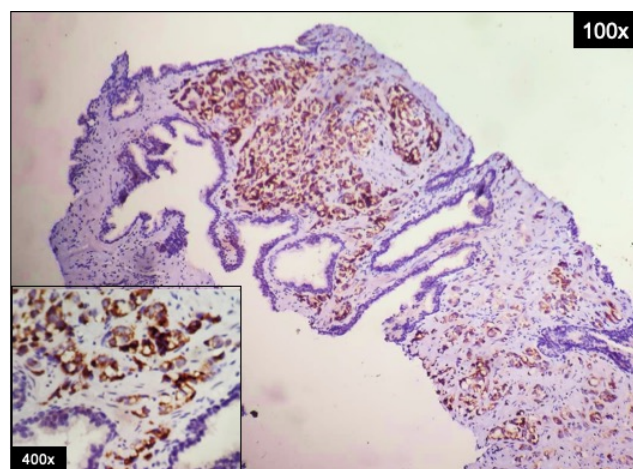


Fig. 4: Immunohistochemistry showing AMACR positivity in tumor cells

in most of the cases of foamy gland carcinoma. Thus, warrants a careful clinicopathological correlation to not falsely categorize these cells with low grade nuclear features as normal prostate glands or as foamy macrophages seen in chronic prostatitis.

In literature the incidence of foamy gland carcinoma in TRUS biopsies is reported to be 17% to 22% while that in radical prostatectomy is between 13% to 22%.^{2,3} Sevim B K et al from Turkey studied 251 TRUS-guided prostate biopsies out of which in 56 (22%) cases FGC was reported; 11 were pure FGC and 45 were mixed with conventional adenocarcinoma.² The criteria used by them were presence of abundant foamy cytoplasm, pyknotic nuclei and infiltration. Warrick J et al reported 81 cases (17%) of FGC in 476 consecutive prostatic needle core biopsies.⁴ Only 2% (10 cases) showed pure foam gland

carcinoma and had linear extent lesser than 10 mm. In a study by Hudson et al two case-series of non-consecutive radical prostatectomies were studied, and the incidence reported was 14.5% and 23%.⁵ Out of 110 prostate TRUS biopsies encountered in our institute in the past 3 years this was the first case of pure FGC. We have seen prostatic adenocarcinoma with small foci of FGC in 9 (8.2%) cases.

Some studies tried to evaluate parameters like age and S.PSA levels. Sevim B K et al has reported mean S.PSA levels of 46.5 ng/ml in FGC while mean levels in conventional adenocarcinoma were 31.2 ng/ml.² However, the difference was not statistically significant. Hudson et al also made a similar observation.⁵

Initial reports of FGC were mostly low-grade malignancy as pyknotic nuclei mimicked benign prostatic glands and, in few cases, foamy macrophages; thus, posing a diagnostic

difficulty in analyzing needle biopsies. Most cases had Gleason Score (GS) of 3 + 3. However, recent studies have shown high grade features in FGC and a higher GS. Zhao et al from Johns Hopkins, USA reported 55 cases of high-grade FGC (GS more than 7) with mean core involvement of 3.4 out of 12, 73% involvement and GS above 8 in 52% cases.⁶ In our case we reported in 9 cores GS as 4 + 4 with 70% involvement and focal presence of high-grade nuclear features.

Many studies have shown increased incidence of perineural invasion (PNI) in FGC.² Our cases did not show any evidence of PNI or extra prostatic extension. Sevim B K et al has stated that higher incidence of PNI in FGC as compared to that in conventional adenocarcinoma has a significant contribution to the prognosis of disease.²

Warrick et al studied prostate needle biopsies over a 2-year period and performed immunohistochemistry (IHC).⁴ Out of 72 cases of FGC, 66 (92%) were positive (score 6 +) for AMACR and 30 (42%) were positive for ERG. Both showed uniform positivity. Tissues with weak AMACR were positive to ERG, however no AMACR negative case was ERG positive. Thus, ERG is an important marker in cases where AMACR positivity is weak. They concluded that FGC had a sensitivity to AMACR similar to that towards ERG. Our case showed a strong AMACR positivity.

4. Conclusion

Pure foamy gland carcinoma in prostate needle biopsy is seldom encountered. Low grade FGC can mimic benign prostatic glands thus advocating a careful approach while reporting prostate biopsies.

5. Source of Funding

None.

6. Conflict of Interest

None.

References

1. Nelson RS, Epstein JI. Prostatic Carcinoma with Abundant Xanthomatous Cytoplasm. *Am J Surg Pathol.* 1996;20(4):419–26.
2. Koca SB, Yıldız P, Behzatoğlu K. Foamy gland carcinoma in core needle biopsies of the prostate: clinicopathologic and immunohistochemical study of 56 cases. *Ann Diagnostic Pathol.* 2014;18(5):271–4.
3. Arora A, Jaiswal R, Anand N, Husain N. Foamy gland variant of adenocarcinoma of prostate: a rare pathological variant. *BMJ Case Rep.* 2017;doi:10.1136/bcr-2016-218384.
4. Warrick IJ, Humphrey P. Foamy gland carcinoma of the prostate in needle biopsy: Incidence, Gleason grade and comparative AMACR vs. ERG expression". *Am J Surg Pathol.* 2013;37:1709–14.
5. Hudson J, Cao D, Vollmer R, Kibel AS, Grewal S, Humphrey PA. Foamy gland adenocarcinoma of the prostate: incidence, Gleason grade, and early clinical outcome. *Human Pathol.* 2012;43(7):974–9.
6. Jin Z, Epstein JI. High grade foamy gland prostatic adenocarcinoma on biopsy or transurethral resection: a morphologic study of 55 cases". *Am J Surg Pathol.* 2009;33:583–90.

Author biography

Padmanabhan Anitha Assistant Professor

Kale Kshitija Junior Resident 3

Gadgil Nitin M Professor

Gwalani Dhansha Junior Resident 1

Cite this article: Anitha P, Kshitija K, Nitin M G, Dhansha G. A case of pure foamy gland carcinoma of prostate on needle core biopsy. *Indian J Pathol Oncol* 2020;7(2):317-319.