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Mixed acinar and macrocystic ductal prostatic adenocarcinoma

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A 64-year-old man with a prostate specific antigen (PSA) of 5.74 ng/ml and no lower urinary symptoms against a family history of prostate cancer presented at our clinic at University College London Hospital (London, UK) in April 2018. Axial T2-weighted magnetic resonance imaging (MRI) of the prostate showed a multicystic lesion (PSA density: 0.07 ng/ml/ml) (Panel A). MRI-targeted biopsies revealed Gleason 3+3 high-grade prostatic intraepithelial-like ductal adenocarcinoma. Either surgery or an MRI-led active surveillance pathway were offered. The patient opted for active surveillance. There was a PSA rise over time (7.17 ng/ml), and MRI showed progressive growth of the cystic areas and infiltrative behaviour (PSA density: 0.10 ng/ml/ml) after one and two years (Panel B and C, arrow). Daily Bicalutamide 150mg daily was initiated. Computed tomography and prostate-specific membrane antigen scans excluded the presence of metastases. Robotic excision and continent diversion with a Mitrofanoff to native bladder vs primary anastomosis to bulbar urethra were offered in February 2020, and the patient chose the latter with a planned insertion of artificial urinary sphincter down the line. His final histology revealed Gleason 3+4 mixed acinar and macrocystic ductal carcinoma (tumour volume: 26cc), with widespread extraprostatic extension but circumferential clear margins. No seminal vesicle or nodal involvement was seen (pT3a N0). Due to the extensive resection, the patient is now fully incontinent, and this is managed with condom drainage.

The 'HG PIN-like' variant of prostatic adenocarcinoma is one of the less common growth patterns of prostatic carcinoma and microscopically mimics high grade prostatic intraepithelial neoplasia but is in fact carcinoma, as confirmed by lack of basal cells with immunocytochemistry (Panel D). This case highlights the need for stringent vigilance

for this variant of prostate cancer, as this may be more aggressive than previously thought compared with conventional acinar adenocarcinoma.

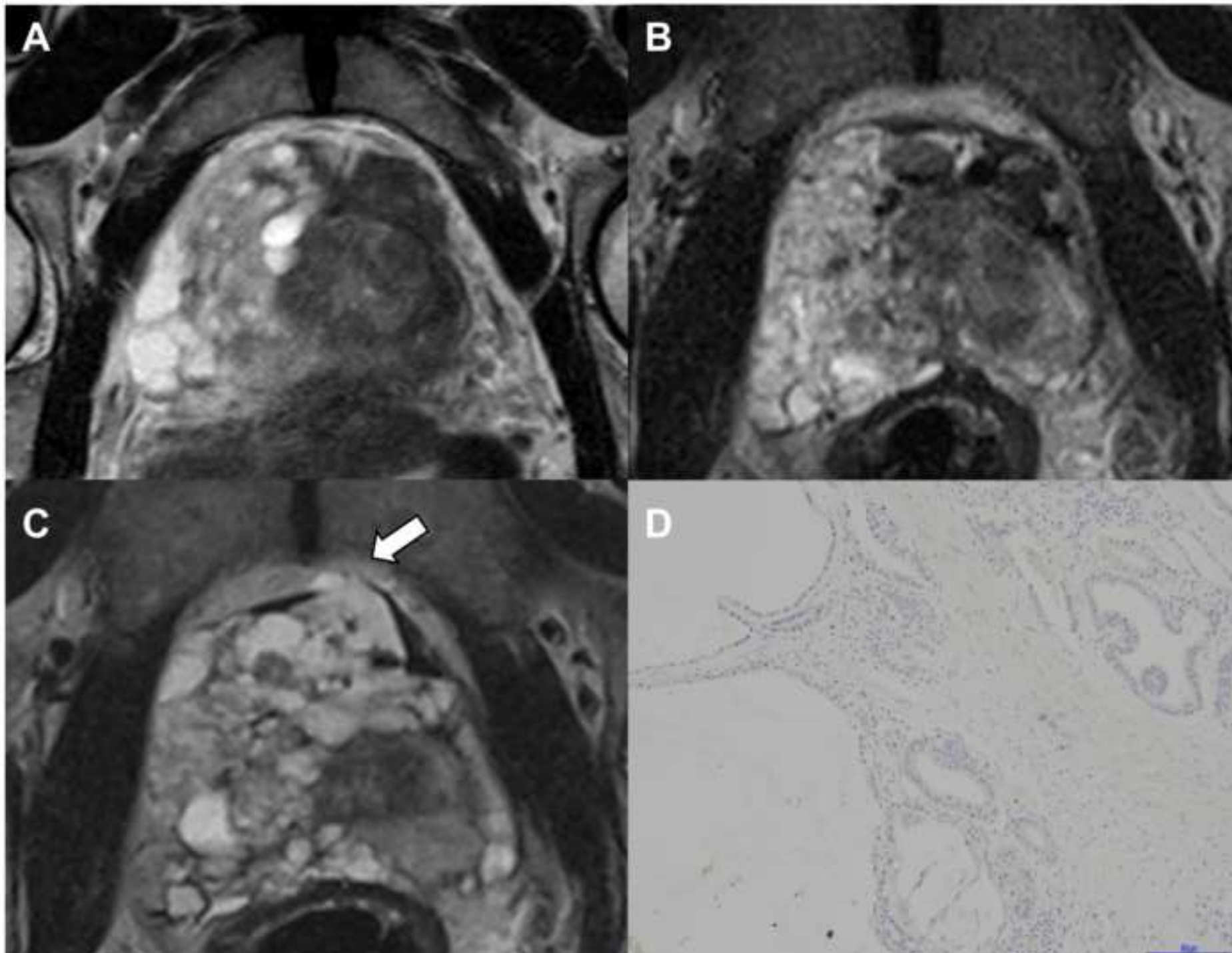
Figure: Serial MRI scans of the prostate (Panels A, B and C) showing the majority of the peripheral zone gradually replaced and expanded by multiple cysts (overall dimensions in B: 40x20 mm). The cystic areas showed progressive infiltrative behaviour (Panel C, arrow), eventually involving the retropubic fat pad (overall dimensions in C: 54x30 mm). Histology specimen (Panel D) from robotic prostatectomy showing Gleason 3+4 mixed acinar and macrocystic ductal carcinoma (Cytokeratin 5 immunohistochemistry; x 5 magnification) showing absence or lack of basal cells.

Contributors

FG, AS, ZT, NR, LD, AF, RB, CMM were clinicians in management of the patient. FG and AH obtained the data. FG and CMM wrote the report. All authors were responsible for critical revision of the report.

Declaration of interests

We declare no competing interests.



Which of the following conditions is characterised by infiltrative cystic areas and lack of basal cells on immunohistochemistry, as shown on these serial MR scans and histology specimen?

1. Benign phylloides tumour
2. Prostate sarcoma
3. Mixed acinar and macrocystic ductal prostatic adenocarcinoma
4. Urothelial carcinoma of the prostate