Ductal Prostate Cancer

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57-year-old man with serum PSA=23ng/ml
No prior TRUS prostate biopsy

Fig. – A) Axial T2 demonstrates a large mass (arrows) involving the entire left side of prostate with evidence of extracapsular extension (arrowhead), and urethral (U) involvement. The T2 signal intensity of the mass is higher than most of PCa cases. B) and C) ADC and DCE show significant diffusion restriction and abnormal enhancement of the mass (arrows). D) Coronal T2 shows involvement of the seminal vesicles by the mass (SV). US/MRI fusion biopsy confirmed ductal PCa of the mass, Gleason score 8. The patient underwent external radiation and hormonal treatment.
Teaching Points

- Ductal prostate cancer (PCa) – histologic subtype of acinar PCa occurs in 1 to 5% of all PCa
- Ductal PCa tends to occur in older men and it may be more aggressive than acinar adenocarcinoma – important because of a worse overall prognosis
- It involves the urethra or suburethral areas of the prostate
- Histologically, it is characterized by the presence of tall, pseudostratified columnar epithelium with abundant cytoplasm
- After adjusting for relevant clinical and pathologic factors including stage and grade, the mean PSA levels were 30% lower in patients with ductal PCa - adversely impact the detection
Teaching Points at Mp-MRI

- Ductal PCa demonstrates **increased T2W signal intensity** (Fig. A) - resembles low grade Gleason 3 +3 = 6 cancer at T2W MRI - renders the tumor occult and under-estimates the tumor grade using current MR scoring systems

- Ductal PCa resembles **high grade** (Gleason score $\geq 7$) conventional adenocarcinomas at both DWI and DCE (Fig. B and C)

- When a suspected focus of PCa demonstrates DWI and DCE features of high Gleason score ($\geq 7$) tumor but is of **paradoxically increased T2W signal intensity**, the diagnosis of ductal PCa should be considered

- The diagnosis is important since ductal PCa is an **aggressive variant** with **advanced stage** at presentation and worse long term prognosis
References