

Introduction

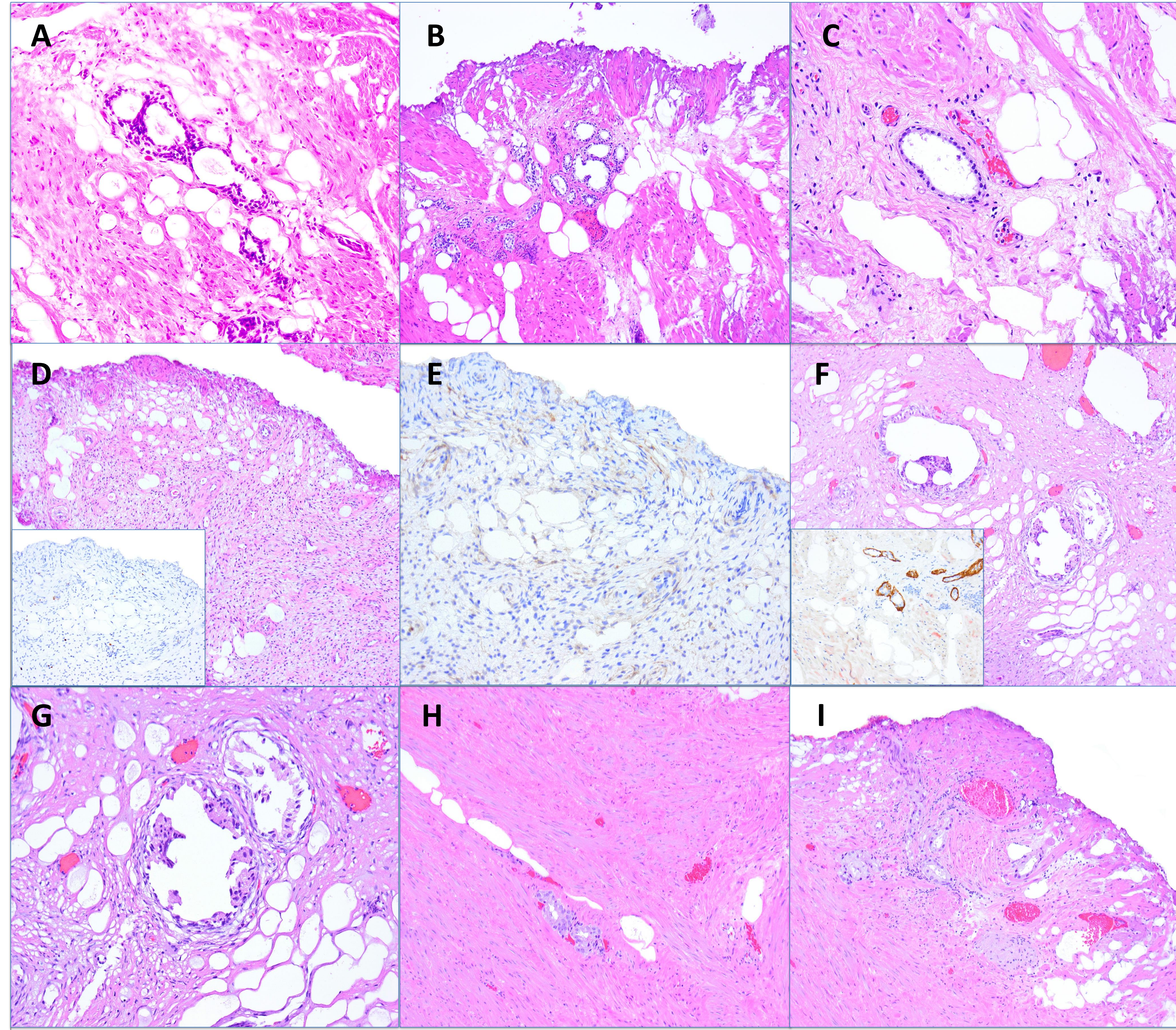
- Prostatic glands in fat are extraprostatic extension and unequivocal criteria of prostatic carcinoma.
- Common benign prostatic hyperplasia (BPH) treatments include TURP (transurethral resection of the prostate), often utilizing electric bipolar resectoscopes (e.g., Strauss, Storz), and Aquablation procedures, which use high-speed water jets to remove prostatic tissue.
- During routine cases we encountered several artifacts resembling intraprostatic fat. Fat within the prostate is exceptionally rare.
- This fat-like artifact can potentially mimic prostatic adenocarcinoma and extraprostatic extension, thus posing a diagnostic challenge.
- Our study will determine whether this artifact is caused by Aquablation or TURP bipolar instruments to improve diagnostic accuracy.

Results

Group	A	B	C	D	E	F	G	H
Aquablation/TURP	48	371	256	69%	145	39%	5	1%
TURP only	39	397	249	62%	103	26%	0	0%
Strauss Procedures	45	445	324	73%	164	37%	5	1%
Non-Strauss Procedures	43	338	179	53%	85	25%	0	0
Control (Holmium Laser Enucleation)	20	224	0	0%	0	0	0	0

A: Cases; B: Total slides; C: Slides with Artifact; D: % Slides with Artifact; E: Slides with Artifact Around Benign Glands; F: % Benign Glands; G: Slides with Artifact Around Malignant Glands; H: % Malignant Glands

Results continued



A-C: Artifact surrounding benign glands. **D:** Artifact in stromal nodule; Inset: Artifact negative for Ki-67 **E:** Artifact negative for CD10. **F-G:** Artifact around benign glands; 10x, 20x; Inset: PIN4 highlights benign glands. **H-I:** Artifact around malignant glands.

Methods

- We evaluated artifact presence and frequency around benign and malignant glands in the following cases:
 - 48 combined Aquablation/TURP cases.
 - 23 TURP cases using Strauss instruments.
 - 16 TURP cases using non-Strauss instruments.
 - 20 holmium laser enucleation cases (control group).
- Stains used: Ki-67, CD10, S100, and PIN4.

Conclusions

- Artifacts present in Aquablation/TURP procedures are also present in TURP-only cases.
- Artifacts are more common with Strauss resectoscopes than with non-Strauss instruments.
- Artifacts are likely due to bipolar resectoscope currents heating tissue water, forming bubbles.
- Accurate recognition can prevent misdiagnosing benign glands with artifacts as prostatic adenocarcinoma and extraprostatic extension.

References

- Fiori C, Checcucci E, Gilling P, Amparore D, Volpi G, De Cillis S, Aimar R, Sica M, Cattaneo G, Alleva G, Manfredi M, Porpiglia F; ESUT Lower Tract Group. All you need to know about "Aquablation" procedure for treatment of benign prostatic obstruction. *Minerva Urol Nefrol.* 2020 Apr;72(2):152-161. PMID: 32083415.
- Issa MM. Technological advances in transurethral resection of the prostate: bipolar versus monopolar TURP. *J Endourol.* 2008 Aug;22(8):1587-95. PMID: 18721041.