INDOCYANINE GREEN ANGIOGRAPHY FOR USE IN ROBOTIC SPERMATIC CORD DENERVATION

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INTRODUCTION

- Chronic orchialgia continues to be a challenge for urologists to treat
- **Microsurgical spermatic cord denervation (MSCD)** shown to significantly decrease pain with few side effects for correctly selected patient
- Accurate microsurgical technique and avoidance of arterial injury is critical
- Particularly useful for novice surgeons and in cases with aberrant anatomy

OBJECTIVES

- We describe the novel use of indocyanine green (ICG) angiography in correlation with Doppler during robotic MSCD for the purpose of arterial localization and verification of preservation.

METHODS

- Ten patients with chronic orchialgia
- Performed by a single surgeon
- All patients failed conservative management, other treatable causes of orchialgia ruled out
- Patients underwent a successful spermatic cord block in clinic prior to surgery
- DaVinci XI Surgical Robot docked in space - 4 arm approach

- Surgical method:
  1. Division of the cremasteric muscle
  2. Isolation of the vas deferens
  3. Division of central adipose tissue
  4. **Injection of ICG → artery localization**
  5. Division of Vas/perivasal nerve fibers
  6. **Final confirmation of patency with ICG**

RESULTS

- ICG administered twice, well tolerated in all patients
- In all instances, the testicular artery illuminated green in Firefly mode within minutes of administration (Figure 1)
- This was then confirmed with use of a Doppler probe, which produced strong arterial signals
- The remainder of the dissection was carried out with care to avoid the artery
- Final confirmation of arterial patency with second ICG administration (Figure 2)

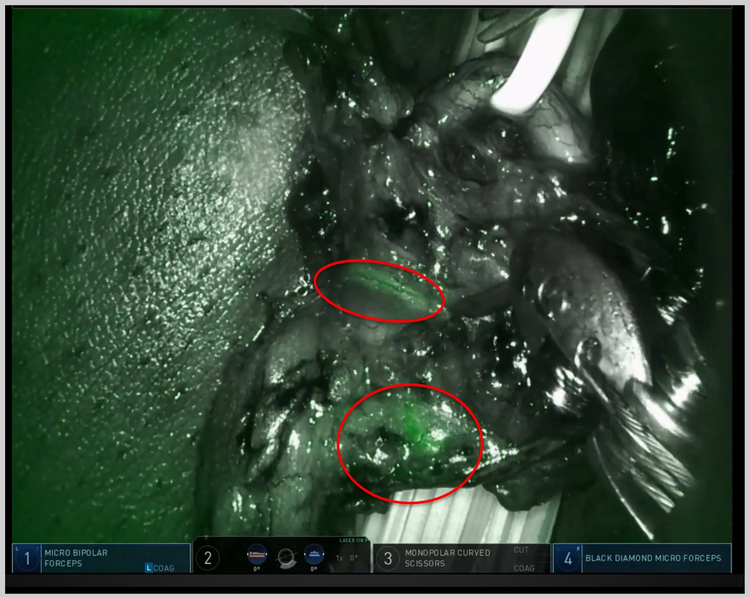

Figure 1: Testicular artery illumination after initial administration of ICG

Figure 2: ICG administered after denervation to confirm arterial patency

CONCLUSION

- The use of ICG angiography intra-operatively for robotic spermatic cord denervations appears to be a reasonable approach that aids in the identification and preservation of the testicular artery

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