

INTRODUCTION

- The Da Vinci is the surgical robot most commonly used for Trans-Oral Robotic Surgery (TORS).
- The latest iteration of the Da Vinci line of surgical robots is the Da Vinci 5.
- The key innovation found in the Da Vinci 5 is the addition of haptic feedback transmitted to the surgeon's hand controls.
- Currently, there is no literature regarding the use of the Da Vinci 5 in TORS.
- The goal of this study is to determine if the Da Vinci 5 is at least non-inferior and as safe as the previous Da Vinci models.

METHODS

- Prospective descriptive study.
- All surgeries of the oropharynx performed with the Da Vinci 5 surgical robot were included.
- Patients were followed for at least 30 days following surgery.
- The analyzed metrics were patient demographics, surgical outcomes, complications, and readmissions.



Fig. 1. Docking process of Da Vinci 5 patient cart

RESULTS

Case	Diagnosis	Surgery	Margins	Complications / Readmissions
1	R BOT MEC, pT2N3bM0	R BOT Resection + Pharyngoplasty + R ND II-IV + R ECA branches ligation	Negative	None
2	L Tonsil p16+ SCC, pT1N0M0	L Oropharyngectomy + Pharyngoplasty + L ND II-IV + L ECA branches ligation	Close	None
3	R Neck p16+ LAD of unknown primary, pT0N1M0	B/L BOT Resection + R Partial pharyngectomy + R ND II-IV + R ECA branches ligation	Negative	None
4	Chronic lingual tonsillitis	R BOT Mucosectomy	N/A	None
5	R Tonsil p16+ SCC, pT1N2M0	R Oropharyngectomy + L Tonsillectomy + R ND II-IV + R ECA branches ligation	Negative	None
6	R BOT p16- SCC, pT2N0M0	B/L BOT Resection + R Partial pharyngectomy	Negative	None
7	L Tonsil p16+ SCC, pT1N0M0	L Oropharyngectomy + L ND II-IV + L ECA branches ligation	Negative	None
8	L BOT p16+ SCC, pT2N1M0	L BOT Resection + L Partial pharyngectomy + L ND II-IV + L ECA branches ligation	Close	None
9	L Tonsil p16+ SCC, pT1N1M0	L Oropharyngectomy + L ND II-IV + L ECA branches ligation	Negative	None
10	L Tonsil p16+ SCC, pT2N2M0	L Oropharyngectomy + R Tonsillectomy + L ND II-IV + L ECA branches ligation	Negative	None
11	R Tonsil p16+ SCC, pT1N0M0	R Radical tonsillectomy + R ND II-IV + R ECA branches ligation	Negative	None
12	L Neck p16+ LAD of unknown primary, pT0N1M0	L Oropharyngectomy + R Tonsillectomy + L ND II-IV + L ECA branches ligation	Negative	None
13	R Suprathyroid epiglottis SCC, pT1N0M0	R Supraglottic partial laryngectomy + B/L ND II-IV + R ECA branches ligation	Negative	None

¹R = Right. ²BOT = Base of tongue. ³MEC = Mucoepidermoid carcinoma. ⁴ND II-IV = Neck dissection of levels II through IV. ⁵ECA = External carotid artery. ⁶L = Left. ⁷SCC = Squamous cell carcinoma. ⁸LAD = Lymphadenopathy. ⁹B/L = Bilateral.



Fig. 2. Docked Da Vinci 5 patient cart

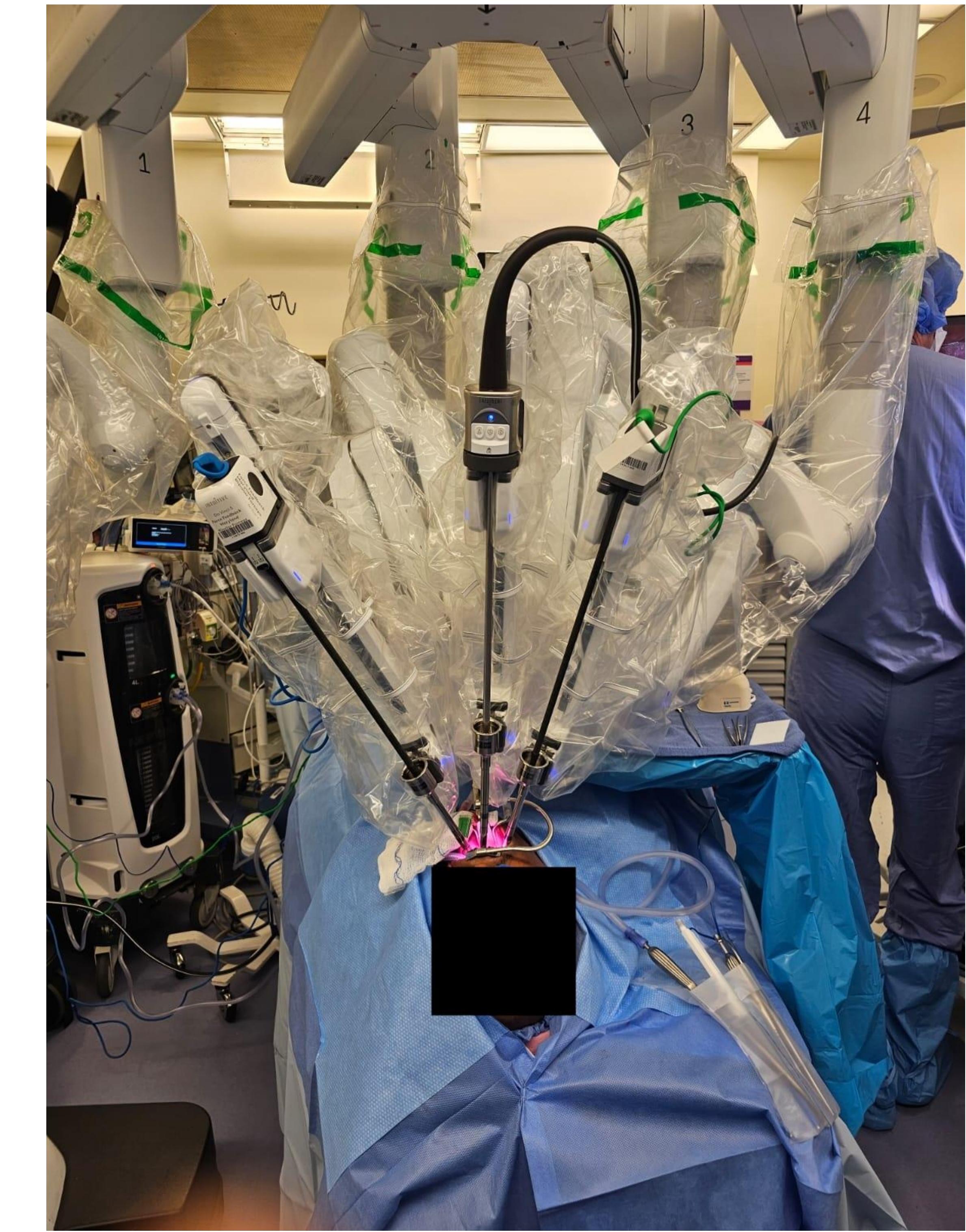


Fig. 3. Docked Da Vinci 5 instrument arms

RESULTS SUMMARY

- A total of 13 Head & Neck Surgery cases were performed with the Da Vinci 5 surgical robot.
 - 12 cases were malignant in nature.
 - 1 case was benign in nature.
- 12/12 cases performed for malignancy yielded negative surgical margins.
 - 2/12 negative margins were considered close surgical margins (<1 mm).
- 12/12 patients were able to eat on postoperative day 1.
- 12/12 patients were discharged in less than 3 days.
- 0/12 patients had postoperative complications.
- 0/12 patients required readmission after surgery.

PRELIMINARY CONCLUSIONS

- Surgery of the oropharynx can be safely performed with the Da Vinci 5 surgical robot.
- Patient outcomes and complication rates are similar to those observed with the Da Vinci Xi and SP surgical robots at our institution.
- Our current experience demonstrates at least non-inferiority of the Da Vinci 5 when compared with the previous Da Vinci surgical systems.
- Future studies investigating the use of the Da Vinci 5's force feedback technology are needed to identify any potential benefits this new feature may bring.

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