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INDUSTRY SYMPOSIUM

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MEDTRONIC Hugo™ RAS BARIATRIC SURGERY

COMBINED THERAPIES..

THE DAWN IF A NEW ERA..

DISCLAIMER

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HUGO™ RAS

KEY DIFFERENTIATORS

FOR ACCESS

Independent arm aids in better docking and dexterity to reach targets

FOR VISION

Open console gives vision without sacrificing situational awareness

FOR CONTROL

Provides pistol hand grip with pinch mechanism for ergonomic hold

03/2022 US-RP-2200086

OPERATING ARM

ROBOTIC EXCHANGE

Raj P, et al. IJARIS, Volume 1 (1); 2023: 29-34

ARM SETTING

STANDARDISATION GUIDES

ARM DIRECTION

Laser alignment helps through AI to identify the cephalic end of patient to help with forward or reverse docking

ARM HEIGHT

Helps to adjust the docking height for a more perfect angle of port placement.

DOCKING ANGLE

Helps with easy positioning of the arm for docking to achieve better performance and makes the procedure standardized / reproducible

ARM TILT

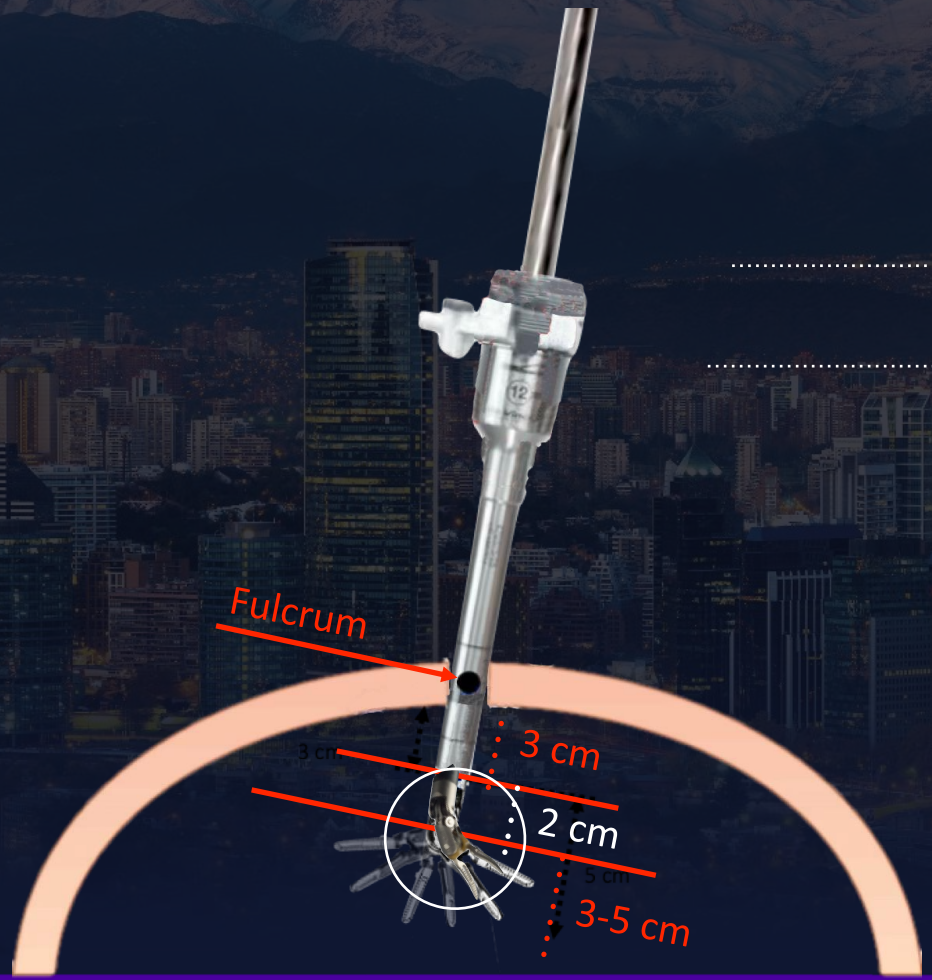
Helps to achieve a good angulation for the port positioning and helps with less collision and better instrument exchange

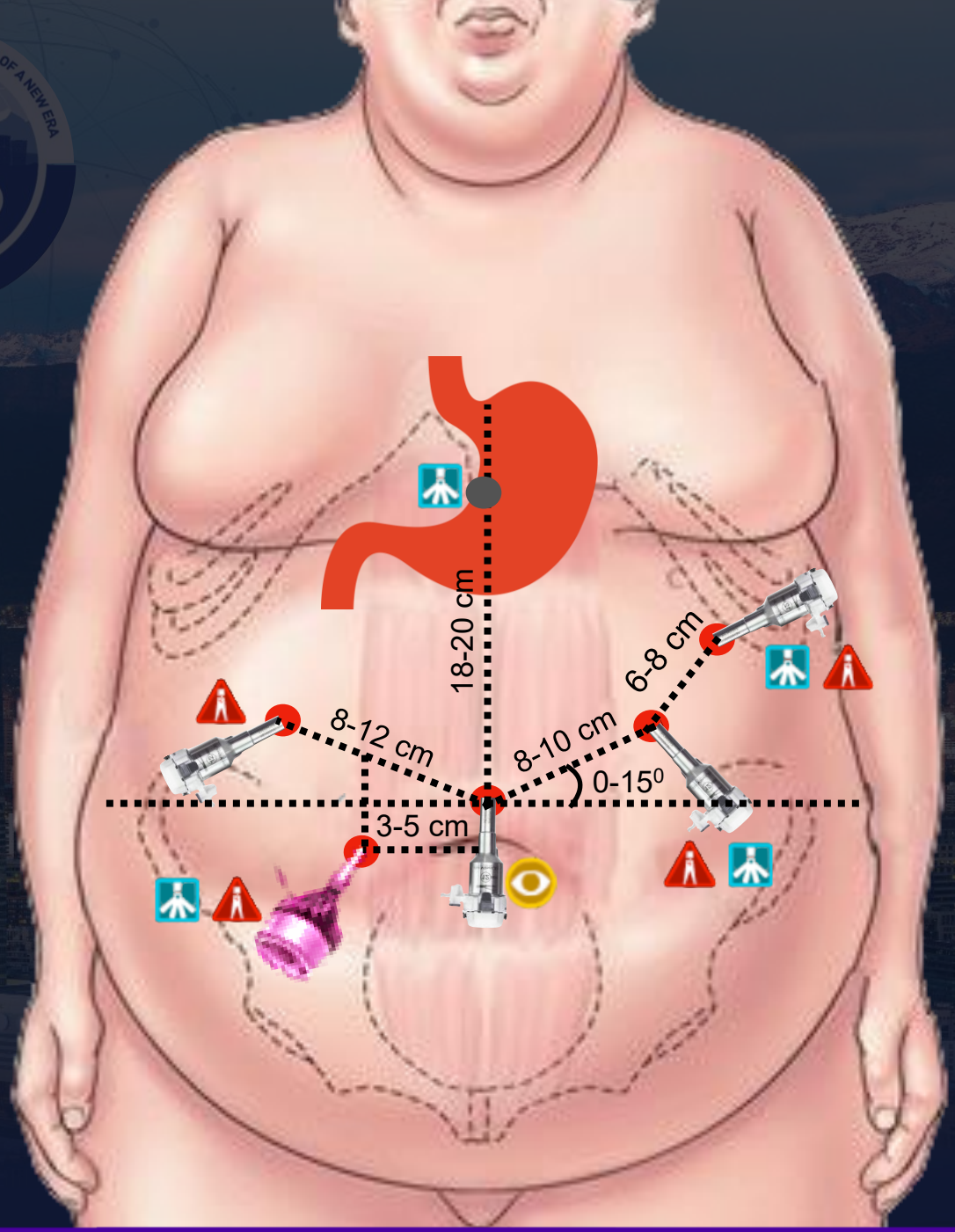
Raj P, et al. IJARIS, Volume 1 (1); 2023: 29-34

PORT PLACEMENT

ERGONOMIC PRINCIPLES

Raj P, et al. IJARIS, Volume 1 (1); 2023: 29-34





CART DOCKING

4 ARM TECHNIQUE

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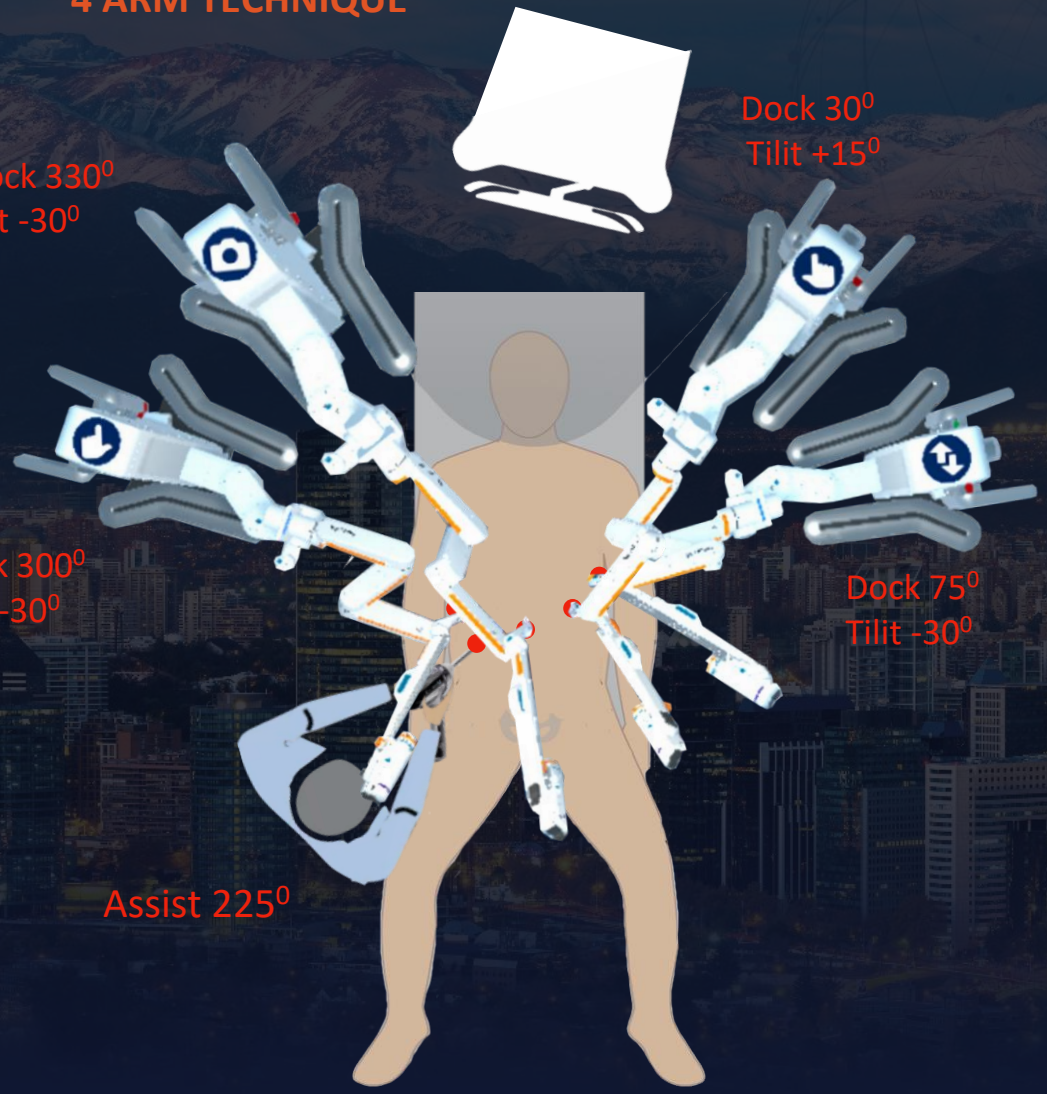
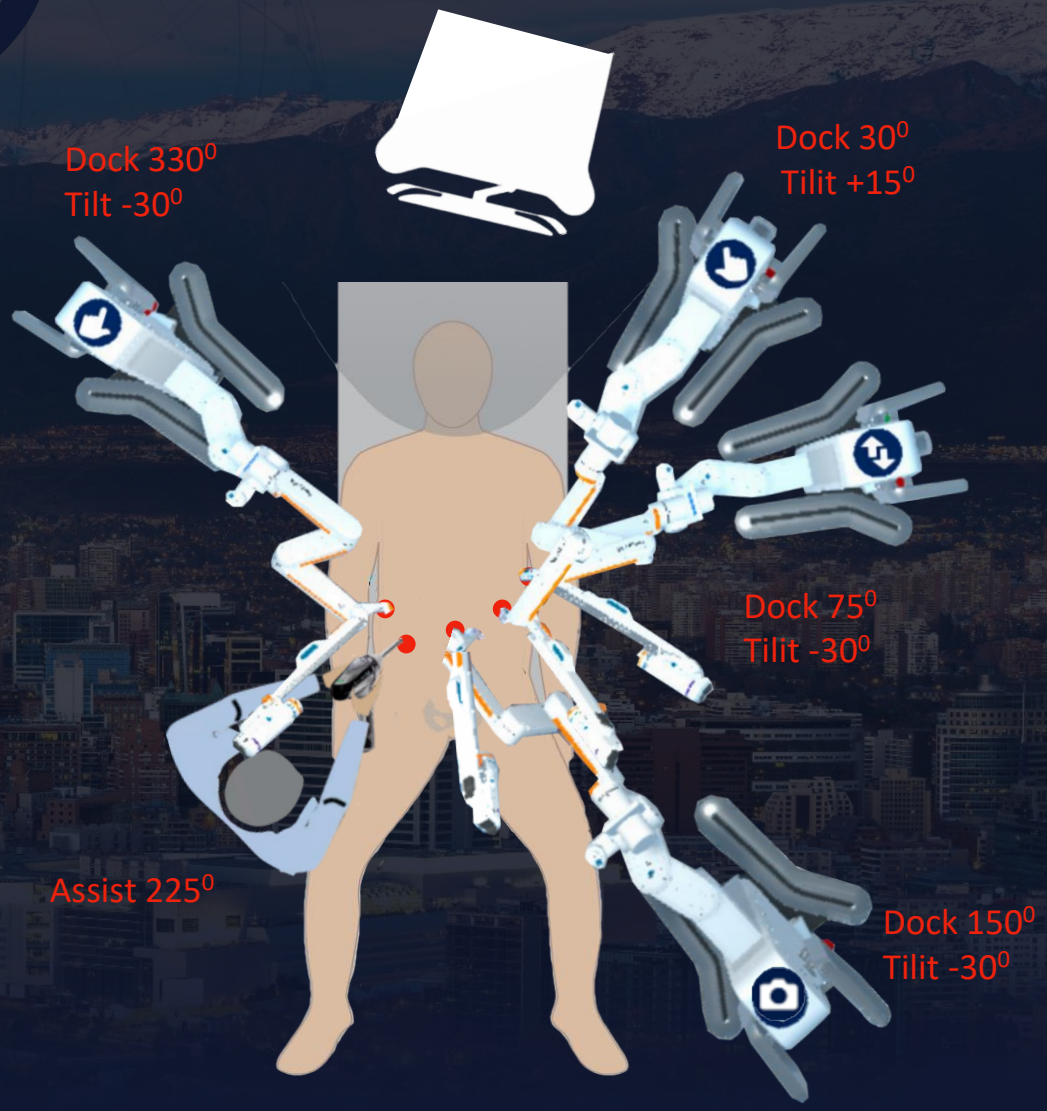
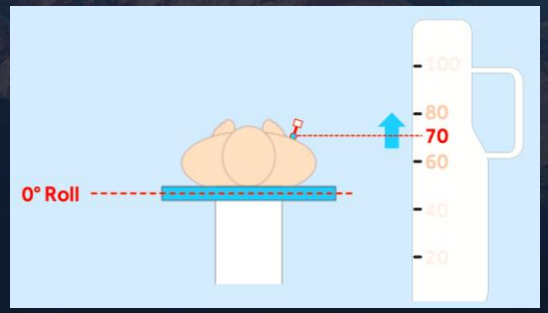
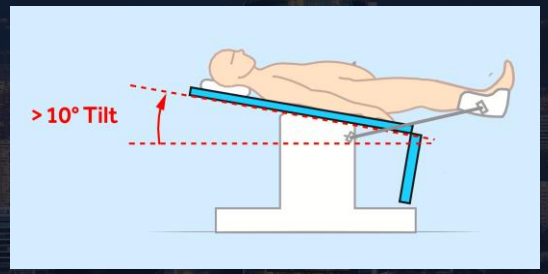


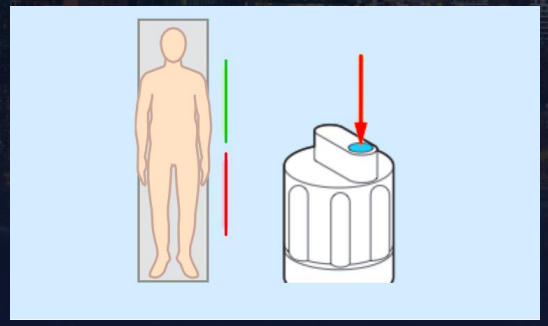


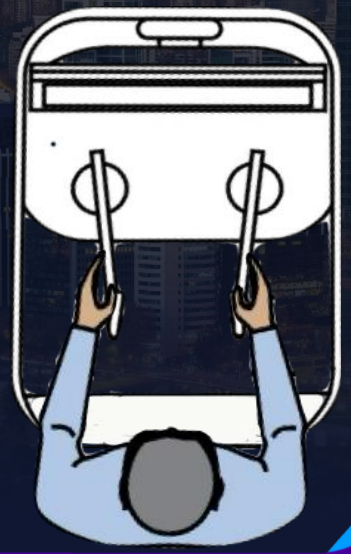
CART DOCKING

BAROS TECHNIQUE

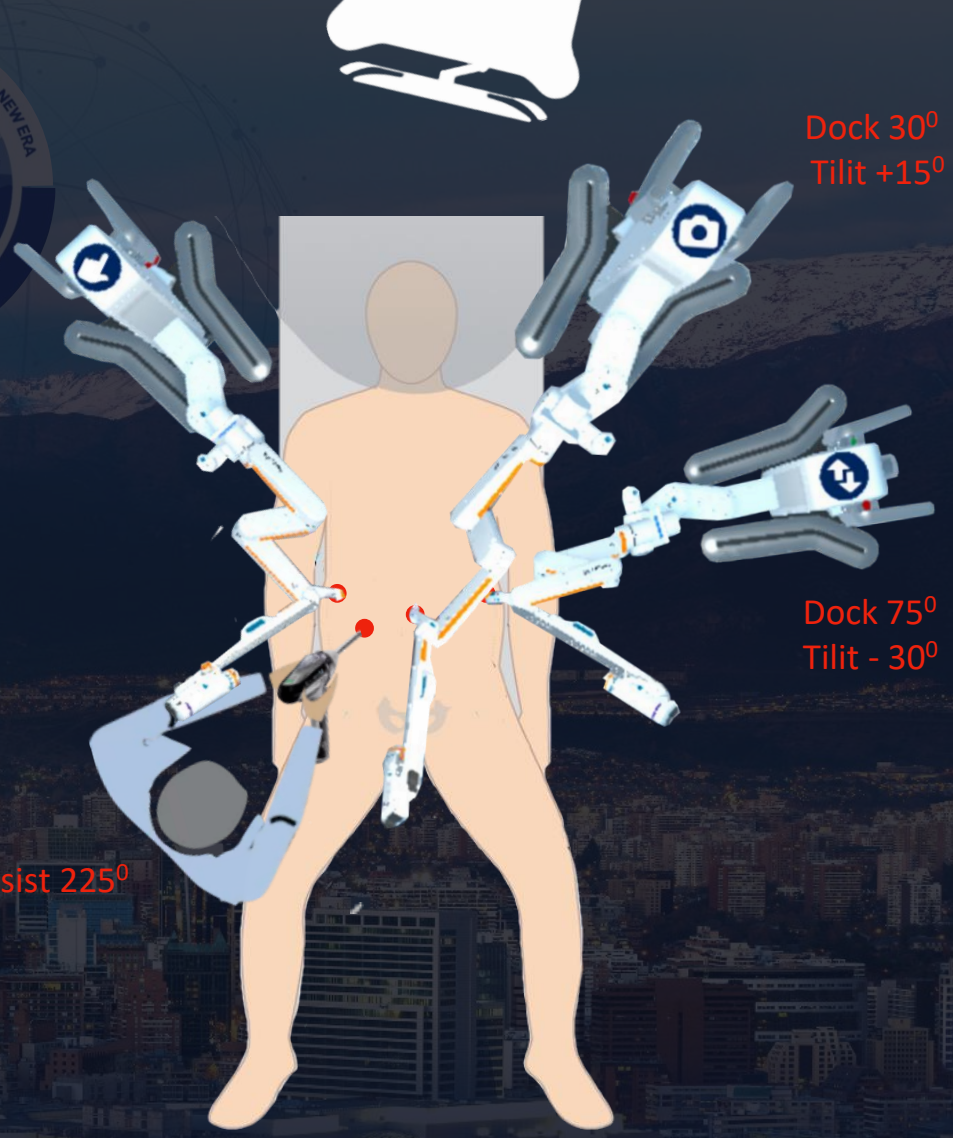








Dock 330⁰
Tilit -30⁰



Dock 30⁰
Tilit +15⁰

Dock 75⁰
Tilit - 30⁰

Assist 225⁰

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ROBOTIC OAGB

HUGORAS DOCKING

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ROBOTIC OAGB

BAROS TECHNIQUE

Raj P, et al. IJARIS, Volume 1 (1); 2023, 19-34

OUR SERIES

SINCE AUG 2022

Particlulars	HugoRAS	Remarks
Primary Surgery	**49**	😎
OAGB	26	😇
SASJ	22	😇
RYGB	1	😇
Revision Surgery	**9**	😎
Sleeve to OAGB	5	😎
Sleeve to SASJ	3	😎
Reversal of OAGB	1	😭
Total	**58**	😍

Raj Palaniappan, et al. Aug 2022-24

COMPARATIVE STUDY

n = 445

Particlulars	HugoRAS	daVinci	MAS
n	58	66	321
BMI	± 45.8	± 46.6	± 43.2
Op. Time (min)	84	72	47
Console Time (min)	66	58	NA
Intra-operative Errors (GRS)	8.0 / 10	8.8 / 10	9.2 / 10
Blood Loss (ml)	< 10 ml	< 10 ml	< 10 ml
Conversion	1 (Technical)	1 (Patient)	0
Post-operative Pain (VAS)	5	4	7
ALOS (days)	1.9	1.6	2.2
Leak / Stricture / Bleeding	1 (Bleeding)	0	0

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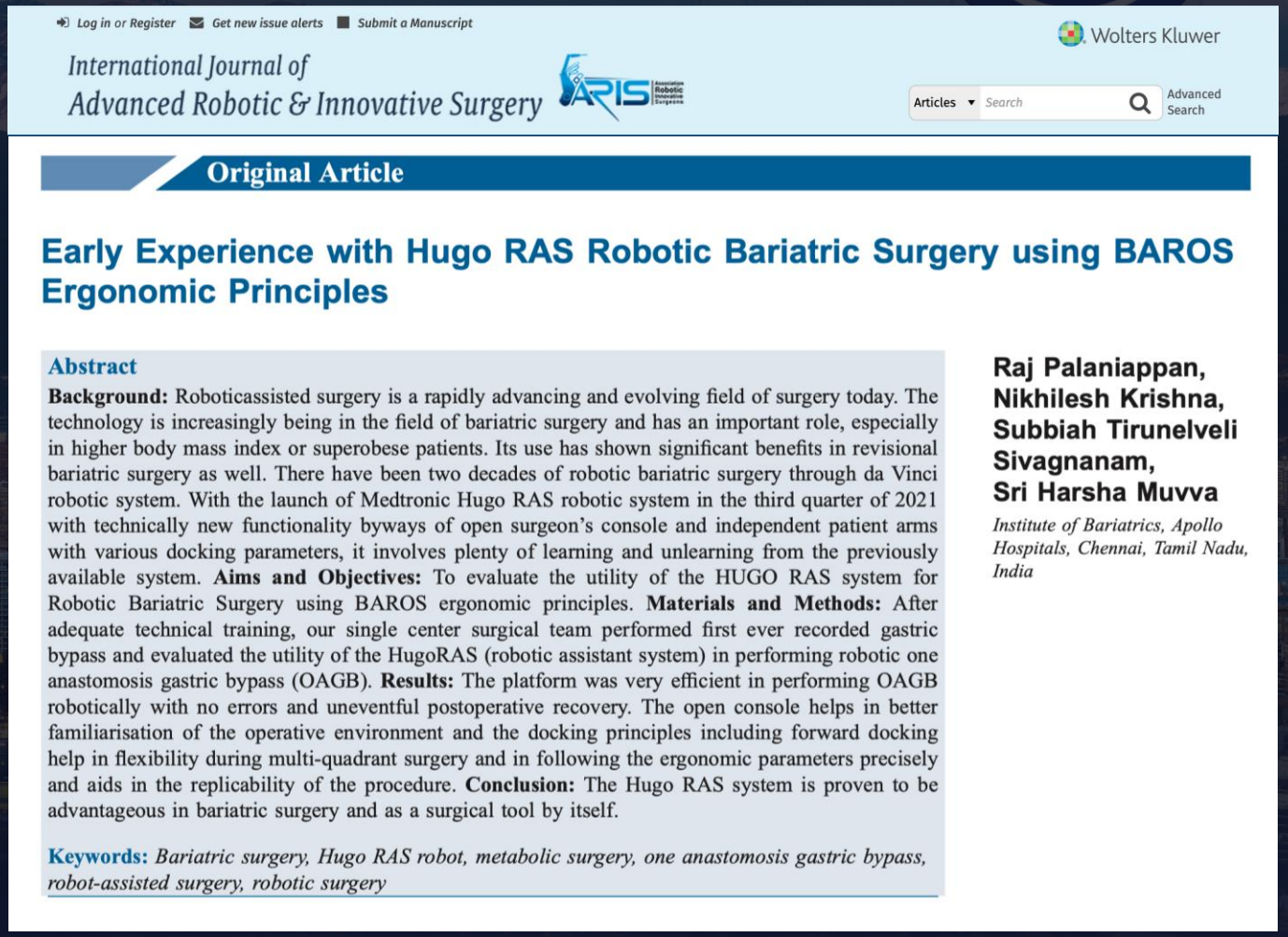
OUR EXPERIENCE

SIGNIFICANT

- Short learning curve of 2 cases (8 cases with a novice bariatric surgeon)
- Possibility of forward and reverse docking
- Significant advantage in multi-quadrant procedures
- Moderately economical for bariatric surgery
- Handicap due to nonavailability of vessel sealer, ultrasonic dissector and stapler
- Requirement of 2 experienced surgeons
- Scope of improvement in hardware and software

HugoRAS BARIATRICS

FIRST EVER PUBLICATION



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Original Article

Early Experience with Hugo RAS Robotic Bariatric Surgery using BAROS Ergonomic Principles

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Abstract

Background: Roboticassisted surgery is a rapidly advancing and evolving field of surgery today. The technology is increasingly being in the field of bariatric surgery and has an important role, especially in higher body mass index or superobese patients. Its use has shown significant benefits in revisional bariatric surgery as well. There have been two decades of robotic bariatric surgery through da Vinci robotic system. With the launch of Medtronic Hugo RAS robotic system in the third quarter of 2021 with technically new functionality byways of open surgeon's console and independent patient arms with various docking parameters, it involves plenty of learning and unlearning from the previously available system. **Aims and Objectives:** To evaluate the utility of the HUGO RAS system for Robotic Bariatric Surgery using BAROS ergonomic principles. **Materials and Methods:** After adequate technical training, our single center surgical team performed first ever recorded gastric bypass and evaluated the utility of the HugoRAS (robotic assistant system) in performing robotic one anastomosis gastric bypass (OAGB). **Results:** The platform was very efficient in performing OAGB robotically with no errors and uneventful postoperative recovery. The open console helps in better familiarisation of the operative environment and the docking principles including forward docking help in flexibility during multi-quadrant surgery and in following the ergonomic parameters precisely and aids in the replicability of the procedure. **Conclusion:** The Hugo RAS system is proven to be advantageous in bariatric surgery and as a surgical tool by itself.

Keywords: *Bariatric surgery, Hugo RAS robot, metabolic surgery, one anastomosis gastric bypass, robot-assisted surgery, robotic surgery*

Conclusion

We are the second surgical team across the world to use Hugo RAS system for robotic bariatric surgery and the first to perform a bypass surgery. Our experience with this Hugo RAS OAGB was satisfactory and comparable with the da Vinci surgery. Independent flexible arms with forward and reverse docking capability allow us greater mobility of arms and aid in performing surgery efficiently and safely, especially in higher BMI/super-obese patients in our patient group. Multi-center trials with improved instrumentation would propel the wider use of this robotic platform for widespread deployment and assess its potential for various procedures.

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Table 2: Docking time, console time, patient position, and port placements for all patients

Patients	Patient position/docking style	Docking time (min)	Console time (min)	Camera arm	Right working	Left working
Patient 1	Modified Lloyd Davis, camera between legs	15	102	Height - 70 cm	Height - 70 cm	Height - 70 cm
	Forward docking of all ports			Tilt - 15	Tilt - 30	Tilt - 45
				Angle - 180	Angle - 60	Angle - 340
Patient 2	Modified Lloyd Davis, camera between legs	10	94	Height - 70 cm	Height - 70 cm	Height - 70 cm
	Reverse docking of working ports			Tilt - 30	Tilt - 30	Tilt - 30
				Angle - 45	Angle - 90	Angle - 300
Patient 3	Supine, camera left of patient	8	79	Height - 70 cm	Height - 70 cm	Height - 70 cm
	Reverse docking of all ports			Tilt - 30	Tilt - 30	Tilt - 30
				Angle - 15	Angle - 50	Angle - 385
Patient 4	Supine, camera left of patient	8	73	Height - 70 cm	Height - 70 cm	Height - 70 cm
	Reverse docking of all ports			Tilt - 30	Tilt - 30 cm	Tilt - 30
				Angle - 15	Angle - 50	Angle - 385
Patient 5	Supine, camera left of patient	7	75	Height - 70 cm	Height - 70 cm	Height - 70 cm
	Reverse docking of all ports			Tilt - 30	Tilt 30 cm	Tilt - 30
				Angle - 15	Angle - 50	Angle - 385

Table 3: Operative outcome of all patients up to 3-month follow-up

Particulars	Result
Intraoperative complications	Nil
Postoperative pain	Reduced
Length of stay	44 h
Postoperative complications	Nil
Postoperative morbidity	Nil
30-day readmission	Nil
90-day readmission	Nil

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CONCLUSIONS

INNOVATIVE

DESIGN

An ideal platform for abdominal surgeries beneficial to specialities involving multi quadrant access

INSTRUMENTS

Paucity of instruments, especially tissue approximation and vessel sealing devices limits its potential

COST

Expensive as an initial investment, however recurrent costs are economical

ERGONOMICS

System with one of the better ergonomics for mutiplanar surgery with reduced learning curve

OUTCOME

Early experience proves the system to be efficient in feasibility and outcome following complex surgery

FUTURE

Addition of new instruments, energy sources and staplers will make the outcome truly significant

DON’T BE AFRAID OF CHANGE..
YOU MAY LOSE SOMETHING GOOD..
BUT YOU MAY GAIN SOMETHING BETTER..

THANK YOU