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Different Graft Configurations for Minimally invasive Anaortic Coronary Artery Bypass (MACAB)

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None declared a conflict of interest.



Coronary Artery Bypass Grafting With and Without Manipulation of the Ascending Aorta

A Network Meta-Analysis

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ABSTRACT

BACKGROUND Coronary artery bypass grafting (CABG) remains the standard of treatment for 3-vessel and left main coronary disease, but is associated with an increased risk of post-operative stroke compared to percutaneous coronary intervention. It has been suggested that CABG techniques that eliminate cardiopulmonary bypass and reduce aortic manipulation may reduce the incidence of post-operative stroke.

OBJECTIVES A network meta-analysis was performed to compare post-operative outcomes between all CABG techniques, including anaortic off-pump CABG (anOPCABG), off-pump with the clampless Heartstring device (OPCABG-HS), off-pump with a partial clamp (OPCABG-PC), and traditional on-pump CABG with aortic cross-clamping.

METHODS A systematic search of 6 electronic databases was performed to identify all publications reporting the outcomes of the included operations. Studies reporting the primary endpoint, 30-day post-operative stroke rate, were included in a Bayesian network meta-analysis.

RESULTS There were 13 included studies with 37,720 patients. At baseline, anOPCABG patients had higher previous stroke than did the OPCABG-PC (7.4% vs. 6.5%; $p = 0.02$) and CABG (7.4% vs. 3.2%; $p = 0.001$) patients. AnOPCABG was the most effective treatment for decreasing the risk of post-operative stroke (-78% vs. CABG, 95% confidence interval [CI]: 0.14 to 0.33; -66% vs. OPCABG-PC, 95% CI: 0.22 to 0.52; -52% vs. OPCABG-HS, 95% CI: 0.27 to 0.86), mortality (-50% vs. CABG, 95% CI: 0.35 to 0.70; -40% vs. OPCABG-HS, 95% CI: 0.38 to 0.94), renal failure (-53% vs. CABG, 95% CI: 0.31 to 0.68), bleeding complications (-48% vs. OPCABG-HS, 95% CI: 0.31 to 0.87; -36% vs. CABG, 95% CI: 0.42 to 0.95), atrial fibrillation (-34% vs. OPCABG-HS, 95% CI: 0.49 to 0.89; -29% vs. CABG, 95% CI: 0.55 to 0.87; -20% vs. OPCABG-PC, 95% CI: 0.68 to 0.97), and shortening the length of intensive care unit stay (-13.3 h; 95% CI: -19.32 to -7.26; $p < 0.0001$).



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- Avoidance of aortic manipulation in anOPCAB may decrease the risk of post-operative stroke, especially in patients with higher stroke risk.
- In addition, the elimination of cardiopulmonary bypass may reduce the risk of short-term mortality, renal failure, atrial fibrillation, bleeding, and length of intensive care unit stay.





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ADULT: CORONARY



Check for updates

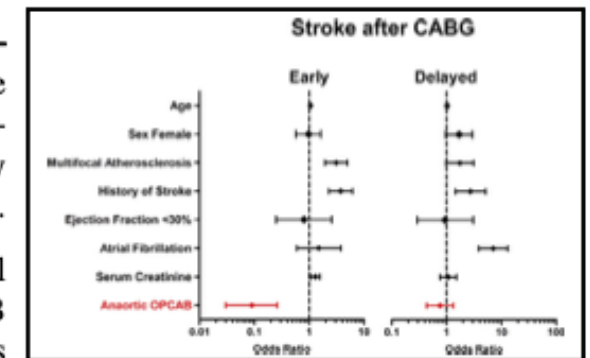
Implementation of the aortic no-touch technique to reduce stroke after off-pump coronary surgery

Alexander Albert, MD, PhD,^a Jürgen Ennker, MD, PhD,^{b,c} Yasser Hegazy, MD,^{d,e} Sebastian Ullrich,^f Georgi Petrov, MD,^a Payam Akhyari, MD, PhD,^a Stefan Bauer, MD, PhD,^d Eda Ürer,^a Ina Carolin Ennker, MD, PhD,^g Artur Lichtenberg, MD, PhD,^a Horst Priss, MD,^h and Alexander Assmann, MD, PhD^{a,i}

ABSTRACT

Objectives: Despite substantial scientific effort, the relationship between stroke after coronary artery bypass grafting and the use of the aortic no-touch off-pump technique (anOPCAB) remains incompletely understood. The present study aimed to define the effect of anOPCAB on the occurrence and time point of stroke.

Results: A total cohort of 15,042 consecutive patients underwent surgical aortic revascularization at a single institution. After establishing anOPCAB as the standard procedure, 4695 patients received surgery by 18 different surgeons using the anaortic approach. After the exclusion of all patients with cardiogenic stroke and “side-clamp” off-pump coronary artery bypass grafting, 13,279



Risk factors for early and delayed stroke after coronary artery bypass grafting.

Perspective

Because the anaortic off-pump coronary artery bypass grafting technique is shown to be suitable for the whole risk spectrum of coronary surgery patients and to approximate the early stroke risk toward 0.1%, it should be considered as a routine approach. Although the quest for prevention of early strokes seems to be solved, future research should focus on the reduction of delayed strokes.



February 19, 2020

Long-term Outcomes Associated With Total Arterial Revascularization vs Non-Total Arterial Revascularization

Rodolfo V. Rocha, MD¹; Derrick Y. Tam, MD^{1,2}; Reena Karkhanis, MBBS^{1,2}; [et al](#)

TAKE-HOME MESSAGE

- This multicenter population-based cohort study compared long-term clinical outcomes in patients undergoing primary isolated coronary artery bypass grafting (CABG) with total arterial revascularization (TAR) versus CABG patients who did not have TAR (non-TAR). The mean follow-up was 4.6 years. Of the 49,404 patients identified, 4.9% received TAR. Propensity-score matching was used to create 2132 patient pairs. No significant differences in in-hospital death were found

Conclusions and Relevance Total arterial revascularization was associated with improved long-term freedom from major adverse cardiac and cerebrovascular events, death, and myocardial infarction and may be the procedure of choice for patients with reasonable life expectancy requiring CABG.

- These data suggest that TAR is associated with better longer-term outcomes than non-TAR for patients undergoing CABG.



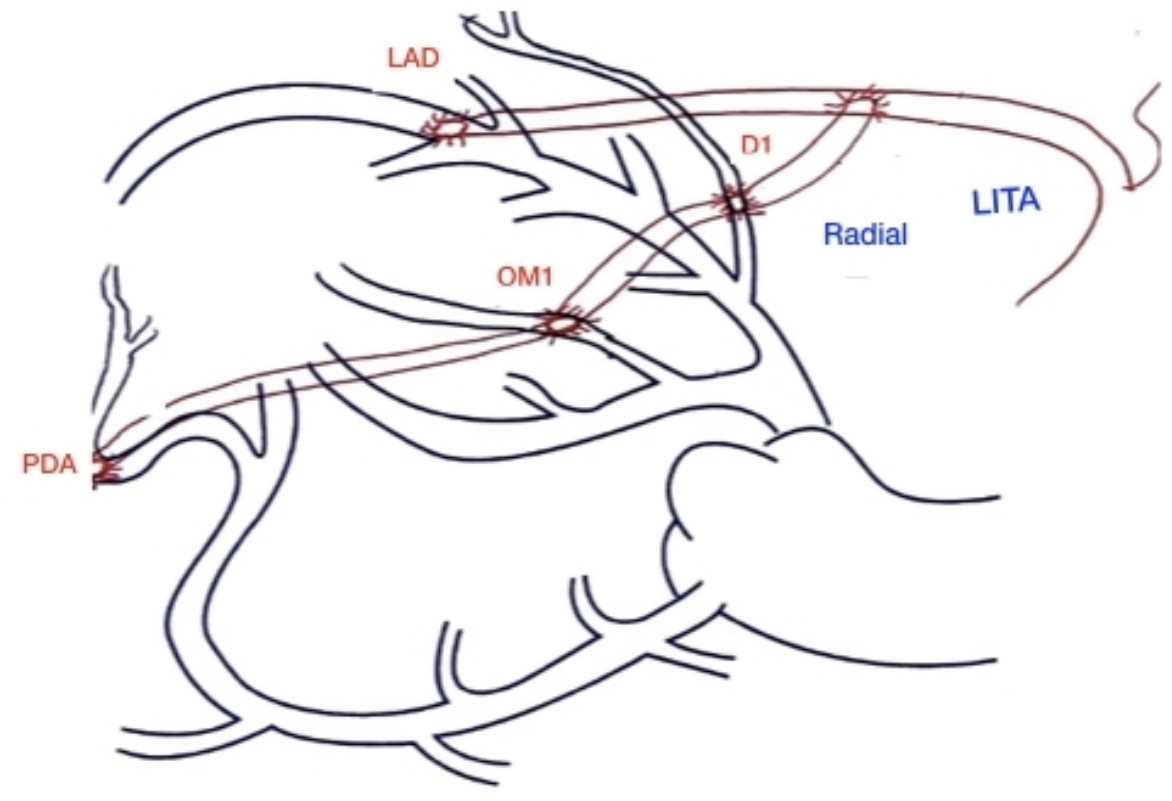
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MACAB X 4
(Radial EVH +
LITA direct vision
and endo cam)



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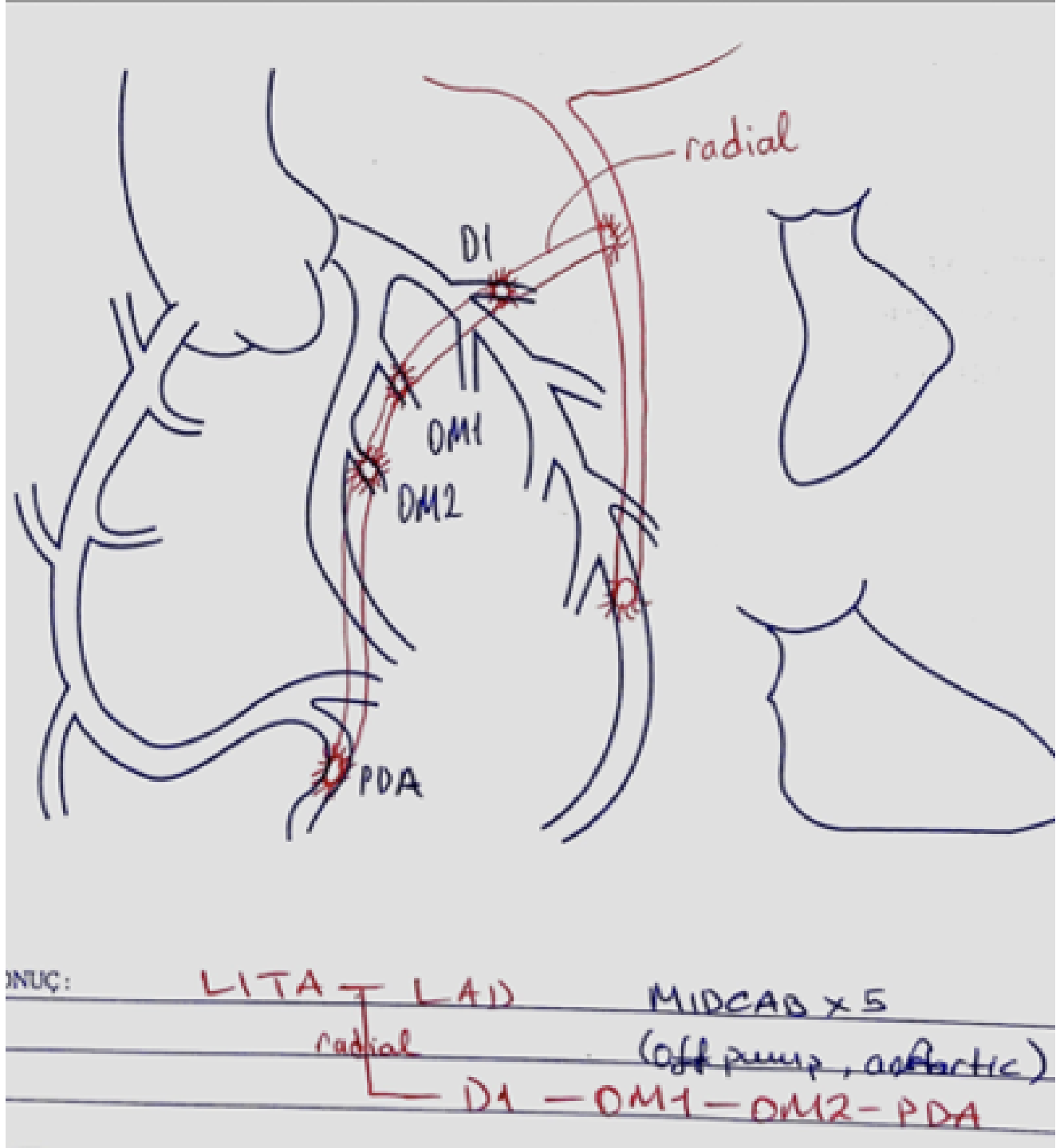
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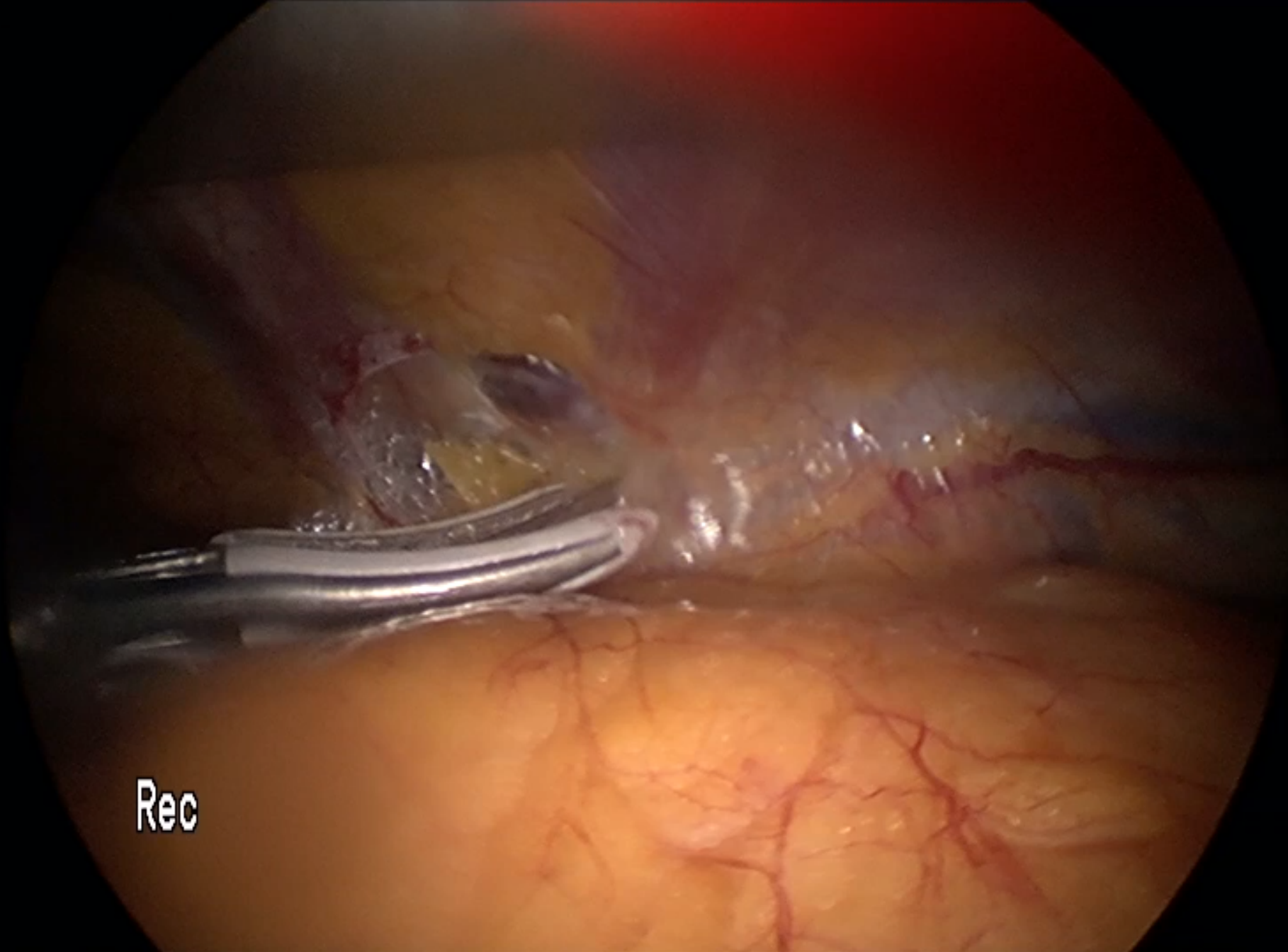
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MACAB X 5 (Radial EVH + LITA direct vision and endo cam)







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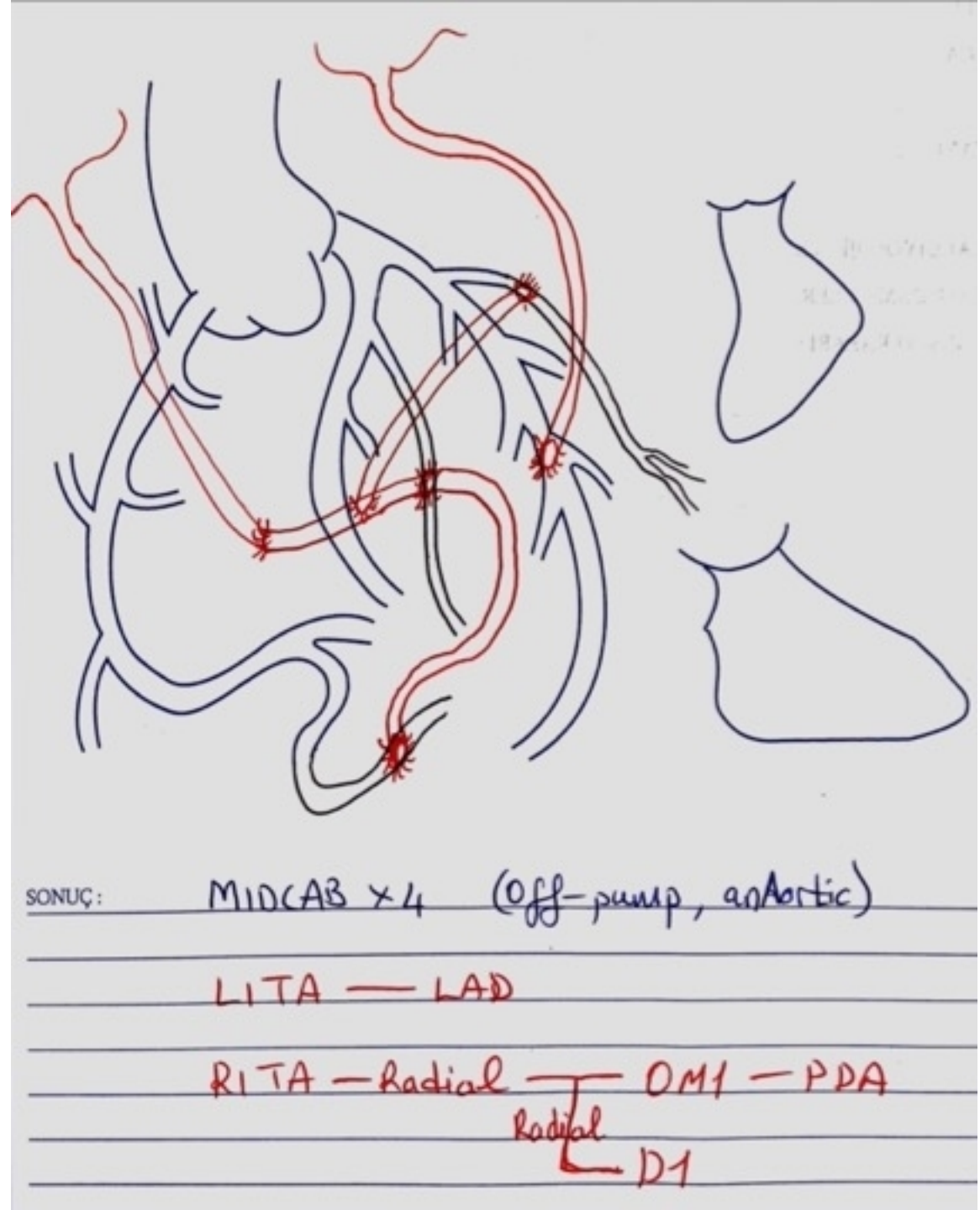
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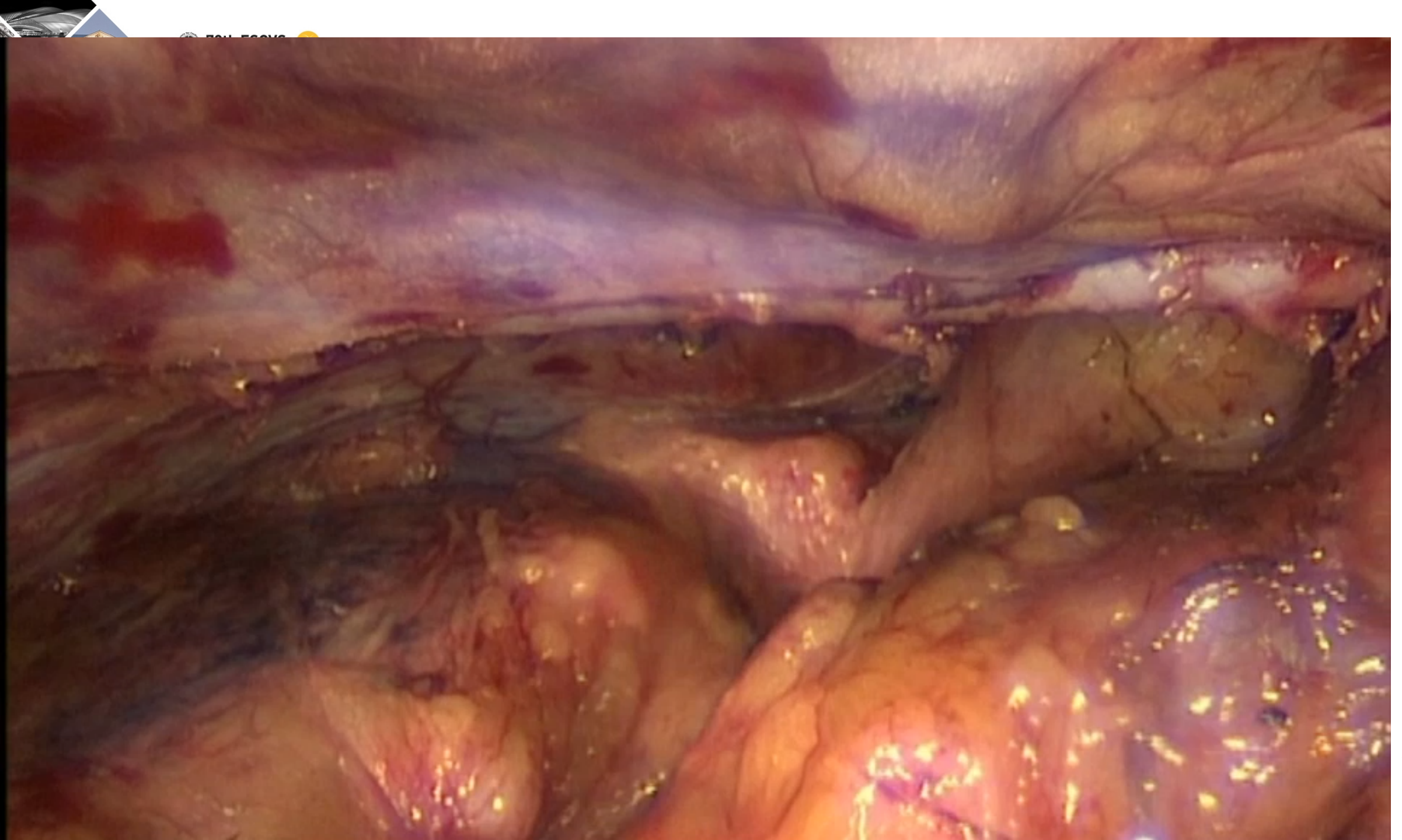
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MACAB X 5 (Radial EVH + BITA direct vision and endo cam)







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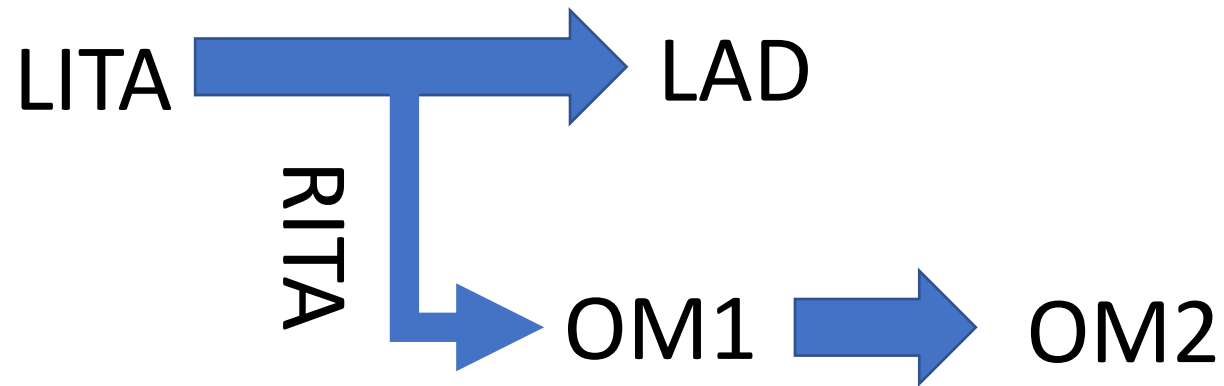
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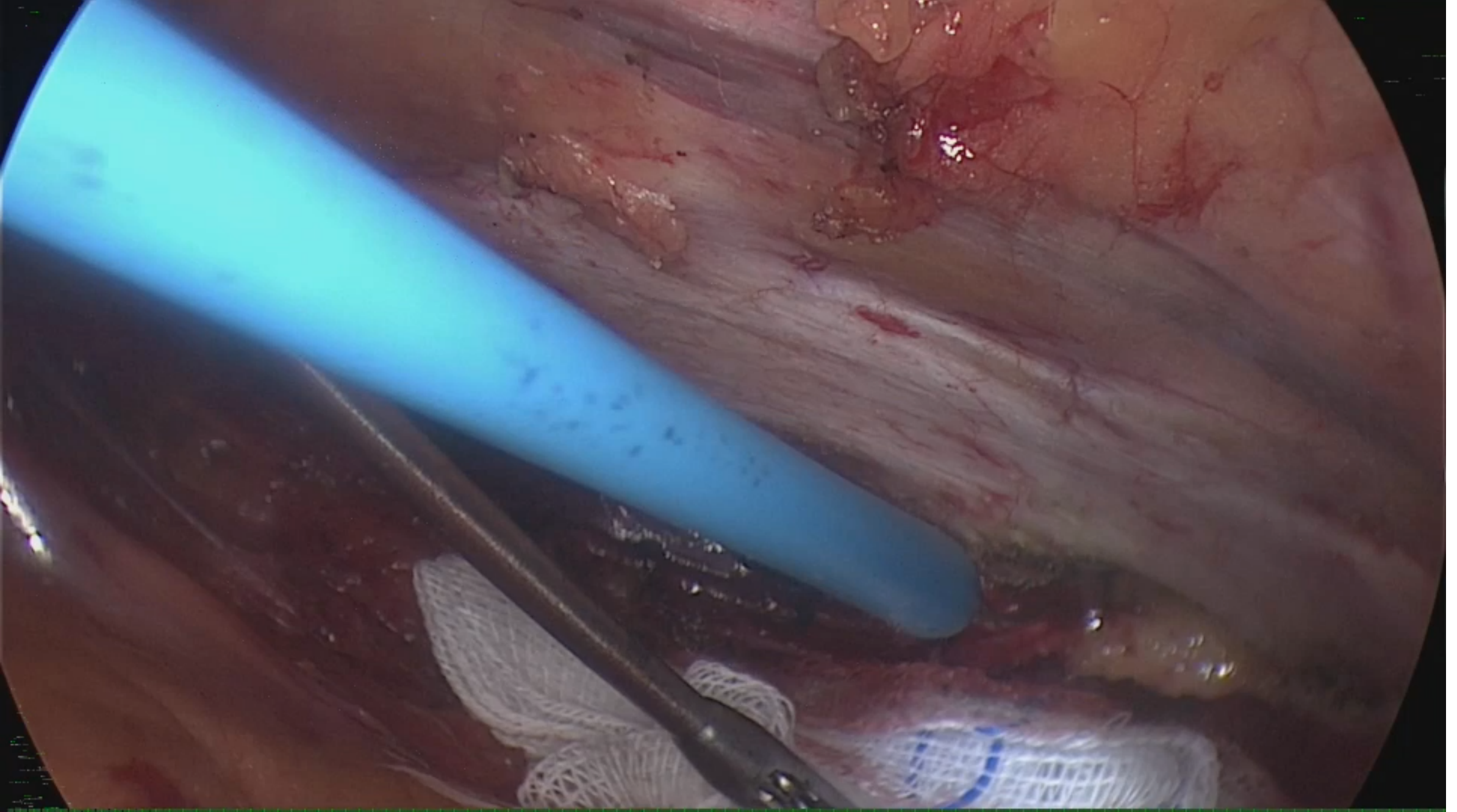
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MACAB X 3

(BITA direct vision and endo cam)







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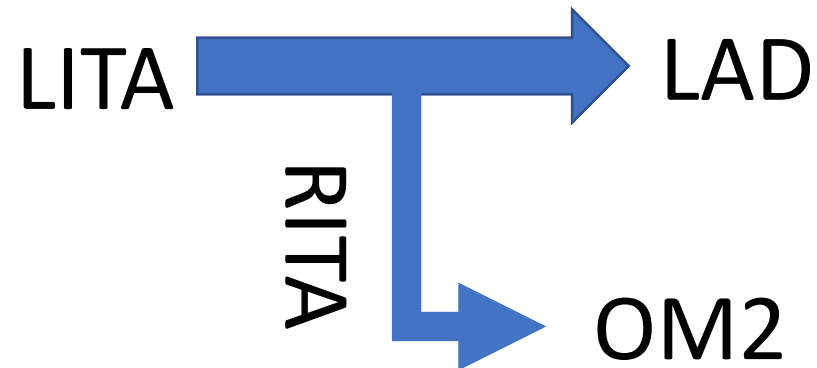
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MACAB X 2 (Robotic assisted BITA harvest)









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