



ASSESSMENT OF THE ENDOMETRIUM AFTER HYSTEROSCOPIC MYOMECTOMY WITH VASOPRESSIN USAGE

IMPACT OF VASOPRESSIN USAGE PRIOR TO HYSTEROSCOPIC MYOMECTOMY

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- Victor Vulpe- World Vice-champion of Shoemaking 2023



Silver in World Championships of Shoemaking 2023

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CONTEXT

- Previously reported usage of Vasopressine in Gynecologic Laparoscopy
- It has been used for many years. There are a lot of clinical trials and mentions in specialized literature
- First usage that we found in literature:

1989 in Hum Reprod



The image is a screenshot of a PubMed search result page. At the top left is the PubMed logo. To its right is a search bar with the word "Advanced" below it. Below the search bar, the text "Search results" is displayed on the left, and "Save" and "Email" buttons are on the right. The main content area shows a breadcrumb trail: "Case Reports > Hum Reprod. 1989 Feb;4(2):158-9. doi: 10.1093/oxfordjournals.humrep.a136862." Below this is the title "Tubal desterilization through exclusive laparoscopy" in a large, bold font. Under the title, the authors "E Sedbon¹, J B Delajolinieres, O Boudouris, P Madelenat" are listed. Below the authors, there is a link for "Affiliations + expand" and the identifiers "PMID: 2521864" and "DOI: 10.1093/oxfordjournals.humrep.a136862". The section "Abstract" follows, containing the text: "The first case of tubal desterilization after Yoon rings through exclusive laparoscopy is reported. Yoon ring tubal segment excision was performed with CO2 laser and coelioscopic scissors, after mesosalpinx haemostasis by ornithine--vasopressin infiltration. Tubal anastomosis was managed with biological glue on an intraluminal guide which was pulled out after 48 h. Follow-up".

VASOPRESSIN IN LAPAROSCOPIC MYOMECTOMY.



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> J Minim Invasive Gynecol. 2019 Mar-Apr;26(3):441-449. doi: 10.1016/j.jmig.2018.05.011. Epub 2018 May 18.

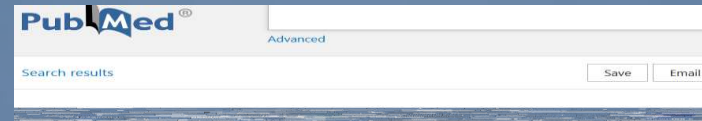
Vasopressin during Laparoscopic Myomectomy: Does It Really Extend Its Limits?

Athanasios Protopapas¹, George Giannoulis², Ioannis Chatzipapas², Stavros Athanasiou², Themistoklis Grigoriadis², Nikolaos Kathopoulos², Dimitrios-Efthymios Vlachos², Dimitrios Zaharakis², Dimitrios Loutradis²

Affiliations + expand
PMID: 29778690 DOI: 10.1016/j.jmig.2018.05.011

Abstract

Study objective: To investigate whether the use of vasopressin played an important role in the safe expansion of the indications of laparoscopic myomectomy in our practice.



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> BMJ Open. 2022 Sep 17;12(9):e056145. doi: 10.1136/bmjopen-2021-056145.

Effect and safety of diluted vasopressin injection on bleeding during robot-assisted laparoscopic myomectomy: a protocol for a randomised controlled pilot trial

Eun Ji Lee¹, Soo Jin Park², Yup Kim², Hyunji Lim², Seungmee Lee³, Ga Won Yim⁴, Gwonhwa Song⁵, Hee Seung Kim⁶

Affiliations + expand
PMID: 36115627 PMCID: PMC9486176 DOI: 10.1136/bmjopen-2021-056145

Abstract

Introduction: Even though the injection of diluted vasopressin into the uterus is expected to reduce intraoperative bleeding with decreased adverse effects during robot-assisted laparoscopic myomectomy (RALM), there is a lack of relevant trials to show its effect and safety. Thus, this study



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Randomized Controlled Trial > Fertil Steril. 2011 Feb;95(2):762-6. doi: 10.1016/j.fertnstert.2010.08.059.

Evaluation of loop ligation of larger myoma pseudocapsule combined with vasopressin on laparoscopic myomectomy

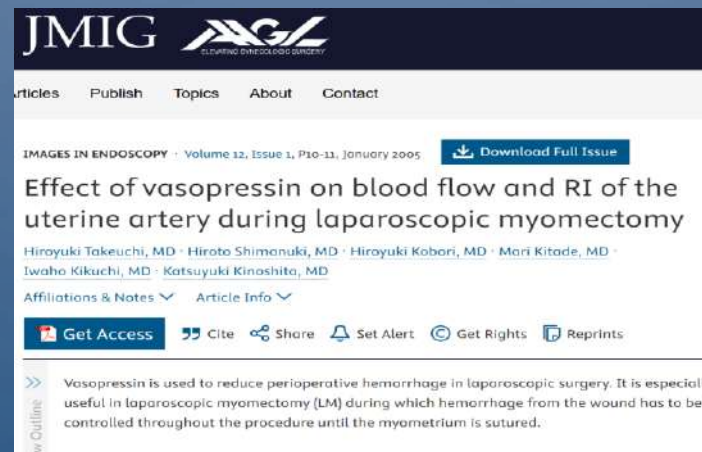
Fujie Zhao¹, Yisheng Jiao, Zhiqiang Guo, Rui Hou, Min Wang

Affiliations + expand
PMID: 20883988 DOI: 10.1016/j.fertnstert.2010.08.059

Free article

Abstract

Objective: To study the effects of reducing hemorrhage by loop ligation of larger myoma pseudocapsules combined with vasopressin on laparoscopic myomectomy (LM).



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IMAGES IN ENDOSCOPY · Volume 12, Issue 1, P10-13, January 2005 [Download Full Issue](#)

Effect of vasopressin on blood flow and RI of the uterine artery during laparoscopic myomectomy

Hiroyuki Takeuchi, MD · Hiroto Shimanuki, MD · Hiroyuki Kobori, MD · Mari Kitade, MD · Iwaho Kikuchi, MD · Katsuyuki Kinoshita, MD

Affiliations & Notes Article Info

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Outline

Vasopressin is used to reduce perioperative hemorrhage in laparoscopic surgery. It is especially useful in laparoscopic myomectomy (LM) during which hemorrhage from the wound has to be controlled throughout the procedure until the myometrium is sutured.



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ORAL PRESENTATION · Volume 22, Issue 6, Supplement 1, S99, November-December, 2019

Vasopressin Administration During Laparoscopic Myomectomy: A Randomized Controlled Trial

SL Cohen¹, KC Wang¹, AR Garguilo¹, ... · S Senapati¹, H-C Hur¹, JJ Einarsson², ... Show more

Affiliations & Notes Article Info

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Outline

To assess impact of volume of dilute Vasopressin solution administered on blood loss during laparoscopic myomectomy.

VASOPRESSIN IN HYSTEROSCOPIC MYOMECTIONY.

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Clinical Trial > J Reprod Med. 1994 Jun;39(6):419-23.

Effects of vasopressin administration during hysteroscopic surgery

S L Corson¹, P G Brooks, S P Serden, F R Batzer, B Gocial

Affiliations + expand
PMID: 7932392

Abstract

A study was performed to assess the effect of dilute vasopressin on intraoperative bleeding and intravasation of the medium during resectoscopic hysteroscopic surgery. Dilute vasopressin or placebo was injected into the cervical stroma at the commencement of resectoscopic endometrial

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> J Am Assoc Gynecol Laparosc. 1996 Aug;3(4, Supplement):S38.

The Effect of Dilute Vasopressin Solution on Blood Loss During Operative Hysteroscopy

DR Phillips¹, H Nathanson, SJ Milim, JS Haselkorn

Affiliations + expand
PMID: 9074210

Abstract

A study was designed to assess the effect of intracervical injection of dilute vasopressin solution 0.05 U/ml on intraoperative blood loss during operative hysteroscopy. In a prospective, computer-randomized, double-blind study, vasopressin or placebo (normal saline) was injected into the cervical

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> Adv Biomed Res. 2021 Aug 30;10:22. doi: 10.4103/abr.abr_70_20. eCollection 2021.

The Effect of Vasopressin during Hysteroscopic Myomectomy in Patients with Submucosal Myoma: A Randomized Controlled Trial

Safoura Rouholamin¹, Maryam Hashemi¹, Sara Haghshenas¹

Affiliations + expand
PMID: 34703801 PMCID: PMC8495297 DOI: 10.4103/abr.abr_70_20

Abstract

Background: The aim was to assess the effect of vasopressin in reducing the time of surgery, amount of bleeding, and fluid deficit during hysteroscopic myomectomy of submucosal myoma from 2016 to 2018.

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Case Reports > J Reprod Med. 2014 Nov-Dec;59(11-12):614-6.

Direct injection of vasopressin during hysteroscopic myomectomy: a case report

M Brigid Holloran-Schwartz¹, Kallie Harrison, Richard Gimpelson

Affiliations + expand
PMID: 25552139

Abstract

Background: Hysteroscopic myomectomy is the ideal procedure for symptomatic women with submucosal fibroids who desire to preserve their fertility. Vascular myomas can limit visualization w

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> J Laparosc Adv Surg Tech A. 2013 Mar;23(3):258-62. doi: 10.1089/lap.2012.0424. Epub 2013 Jan 23.

Transcervical intralesional vasopressin injection in hysteroscopic myomectomy--description of a new technique

Alyssa S W Wong¹, Eva C W Cheung, Kit-Tong Leung, Sik-Wing Yeung, Tak-Yeung Leung, Tak-Yuen Fung

Affiliations + expand
PMID: 23343201 DOI: 10.1089/lap.2012.0424

Abstract

An original technique of transcervical intralesional vasopressin injection that allowed direct infiltration to submucous myomas under hysteroscopic control is described. Five patients with a symptomatic

Journal of Minimally Invasive Gynecology
Volume 24, Issue 7, Supplement, November–December 2017, Page S109

ELSEVIER

231 - Hysteroscopic Myomectomy with Intra-Myoma Vasopressin

Gandhi A.R., Imudia A.

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<https://doi.org/10.1016/j.jmig.2017.08.251> [Get rights and content](#)

VASOPRESSIN IN HYSTEROSCOPIC MYOMECTIONY.

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Randomized Controlled Trial > Obstet Gynecol. 2014 Nov;124(5):997-1003.
doi: 10.1097/AOG.0000000000000515.

Transcervical intralesional vasopressin injection compared with placebo in hysteroscopic myomectomy: a randomized controlled trial

Alyssa Sze Wai Wong¹, Chun Wai Cheung, Sik Wing Yeung, Hiu Lan Fan, Tak Yeung Leung, Daljit Singh Sahota

Affiliations: + expand
PMID: 25437716 DOI: 10.1097/AOG.0000000000000515

Abstract

Objective: To evaluate the efficacy of transcervical intralesional vasopressin injection to submucous myoma in hysteroscopic myomectomy from 2011 to 2014.

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ORAL PRESENTATION - Volume 22, Issue 6, Supplement, S23, November-December, 2015

Vasopressin Myoma Infiltration During Hysteroscopic Myomectomy

JM Canseco-Lima · A Hernandez-Denis · J Audifred-Saloman

Affiliations & Notes Article Info

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» To determine if the use of vasopressin infiltration allows less blood loss during hysteroscopic myomectomy.

 **Journal of Minimally Invasive Gynecology**
Volume 29, Issue 11, Supplement, November 2022, Page 551

VIDEO SESSION 6 - FIBROIDS (2:00 PM — 3:05 PM) 2:45 PM

Round Ligament Injection with Vasopressin during Myomectomy

O. Casas Diaz¹, E. Trieu², R. Thompson¹, V.V. Marozov¹

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<https://doi.org/10.1016/j.jmig.2022.09.172> [Get rights and content](#)

Study Objective

To demonstrate the surgical technique of round ligament injection with vasopressin during laparoscopic and abdominal myomectomy as a novel technique to help minimize blood loss.

 **Journal of Minimally Invasive Gynecology**
Volume 31, Issue 11, Supplement, November 2024, Page S106

11706 Strategies to Minimize Blood Loss and Facilitate Laparoscopic Myomectomy

GH Zanluchi¹, LF Fernandes¹, MP Andres², MS Abrão²

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<https://doi.org/10.1016/j.jmig.2024.09.822> [Get rights and content](#)

Study Objective

Show strategies to minimize blood loss in minimally invasive laparoscopic myomectomy.

 **European Journal of Obstetrics & Gynecology and Reproductive Biology**
Volume 225, September 2018, Pages 279-283

Full length article

Comparison of intramyometrial vasopressin plus rectal misoprostol with intramyometrial vasopressin alone to decrease blood loss during laparoscopic myomectomy: Randomized clinical trial

Sonal Srivastava, Reeta Mahay, Garima Kachhawa, Neejoo Bhatia, Ashish Datt Upadhyay, Aika Kriplani

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<https://doi.org/10.1016/j.ejogrb.2018.07.006> [Get rights and content](#)

Abstract

Objective

To compare the efficacy and safety of intramyometrial vasopressin plus rectal misoprostol with intramyometrial vasopressin alone to reduce blood loss during

 **Journal of Gynecology Obstetrics and Human Reproduction**
Volume 31, Issue 10, December 2022, 102485

Review

Prophylactic vasopressin to reduce intraoperative blood loss and associated morbidities during myomectomy: A systematic review and meta-analysis of 11 controlled trials

Osama Alomar^{a,b}, Ahmed Abu-Zeid^{c,d}, Mohammed Ziad Jemjeem^e, Abdullah AMA Alzubairi^f, Saud Qwattmer Alsehlmi^g, Safa Alabdralami^h, Saeed Baradwanⁱ, Mohammed Abuzeid^j, Mejad Saeed Alshahrani^k, Khalid Khadawari^l, Ehab Badghish^m, Hanadi Bakrahⁿ, Maha Al Badharith^o, Balthal Abdulaziz Bukhari^p, Afnan Baradwan^q, Hany Salem^r, Icmal A. Al-Badawi^s

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<https://doi.org/10.1016/j.jogoh.2022.102485> [Get rights and content](#)

Abstract

Objective




To collate evidence from randomized controlled trials (RCTs) and nonrandomized controlled trials (NCTs) on the efficacy and safety of vasopressin versus passive control

PURPOSE OF THE APPROACH

- A better endometrial scar
- Obtaining a better functionality of the endometrium regarding implantation



CLINICAL CASES

- We selected the cases of patients with intrauterine myoma, types FIGO 1 and 2, who intend to conceive and are somehow prone to assisted reproduction
- 
- 
- 

CASE 1

- Patient 34 years, GII, PII with type 2 myoma. She was, at request, sterilized by tubal ligation. She changed her mind and wanted to conceive.
- At ultrasound exam revealed the myoma
- We have injected Vasopresin, (Argipressine), 10 UI diluted in 10 ml saline before myomectomy
- The second stage was the laparoscopic tubal repair
- The surgeries were without accidents and incidents
- She was discharged next day

CASE 1

- As a particularity of the case we underline that the tubes were ligated so we could have a good view, the saline used for hysteroscopy did not pass into peritoneum.
- We will test the tubal patency after 3 months and if we move on to ART we should have a second look hysteroscopy and biopsy straight from the scar




CASE 2

- GII, PII, 44 years, with proximal tubal obstruction
- FIGO type 1 myoma and multiple endometrial polyps
- We have injected Vasopresin, (Argipressine), 10 UI diluted in 10 ml saline before myomectomy
- Before ART we will have a second look hysteroscopy and biopsy



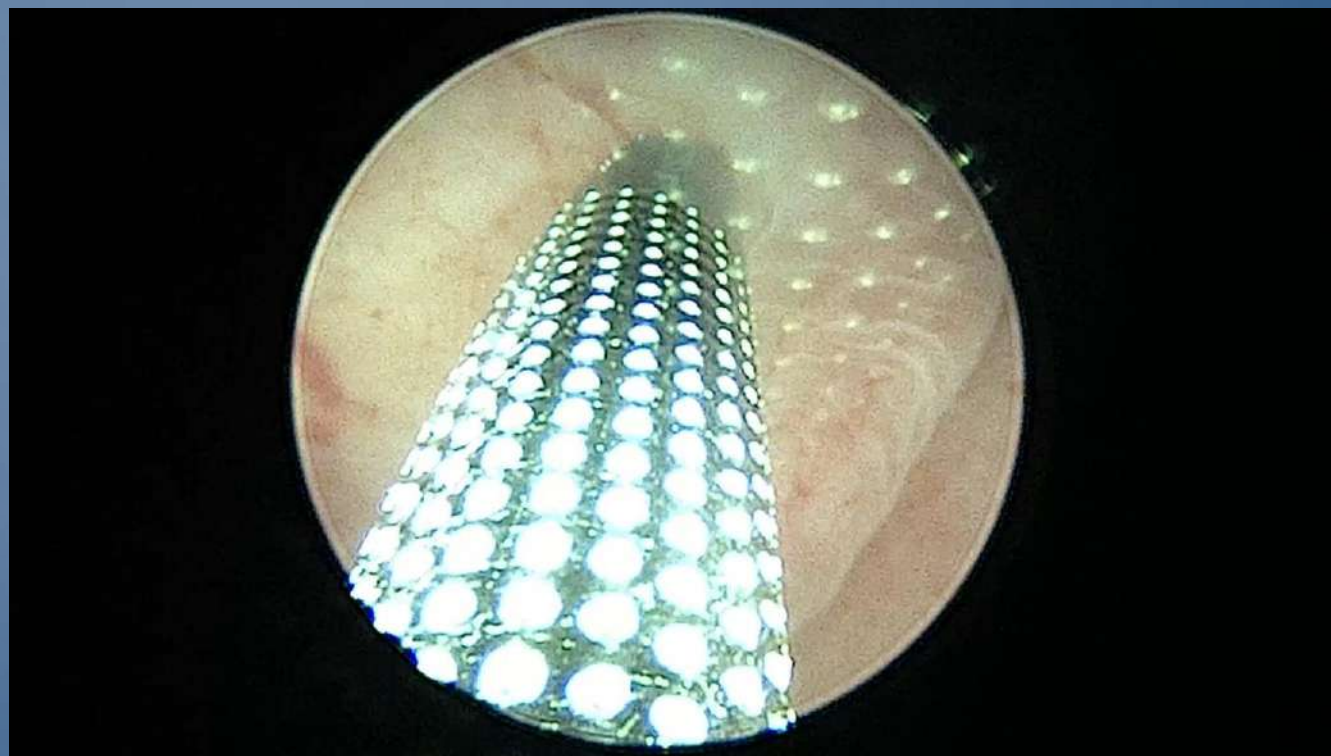
MYOMECTOMY- WE TRIED SOMETHING HOPING FOR A BETTER OUTCOME:

If injecting vasopressin to use the technique of myomashaving, morcellation leads to:

- No electric resectoscopy and no electric haemostasis
 - Better endometrial scar
 - favorable for future implantation
- 
- 
- 

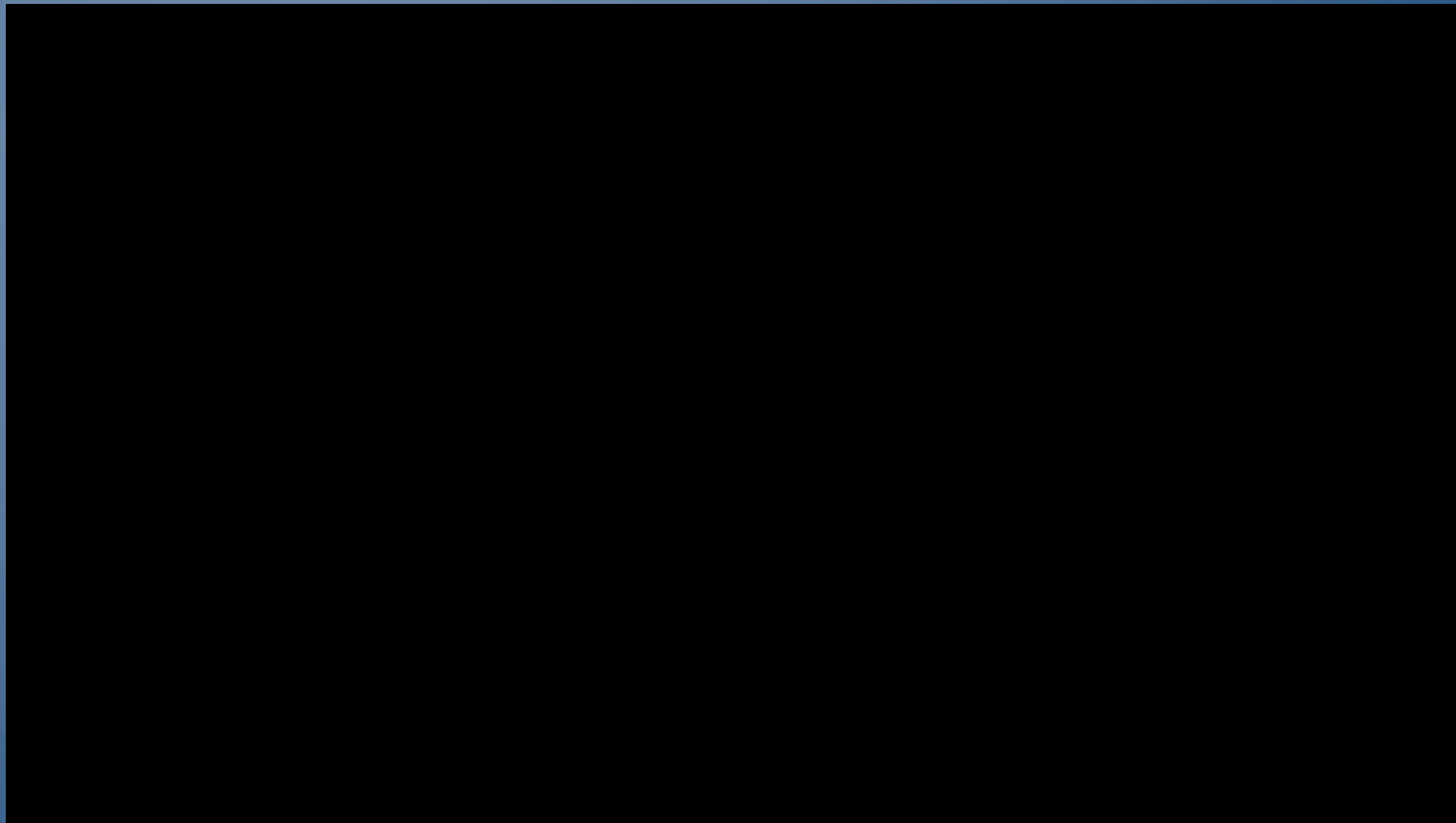
WE ARE LOOKING FOR A BETTER OUTCOME:

Injecting the vasopressin



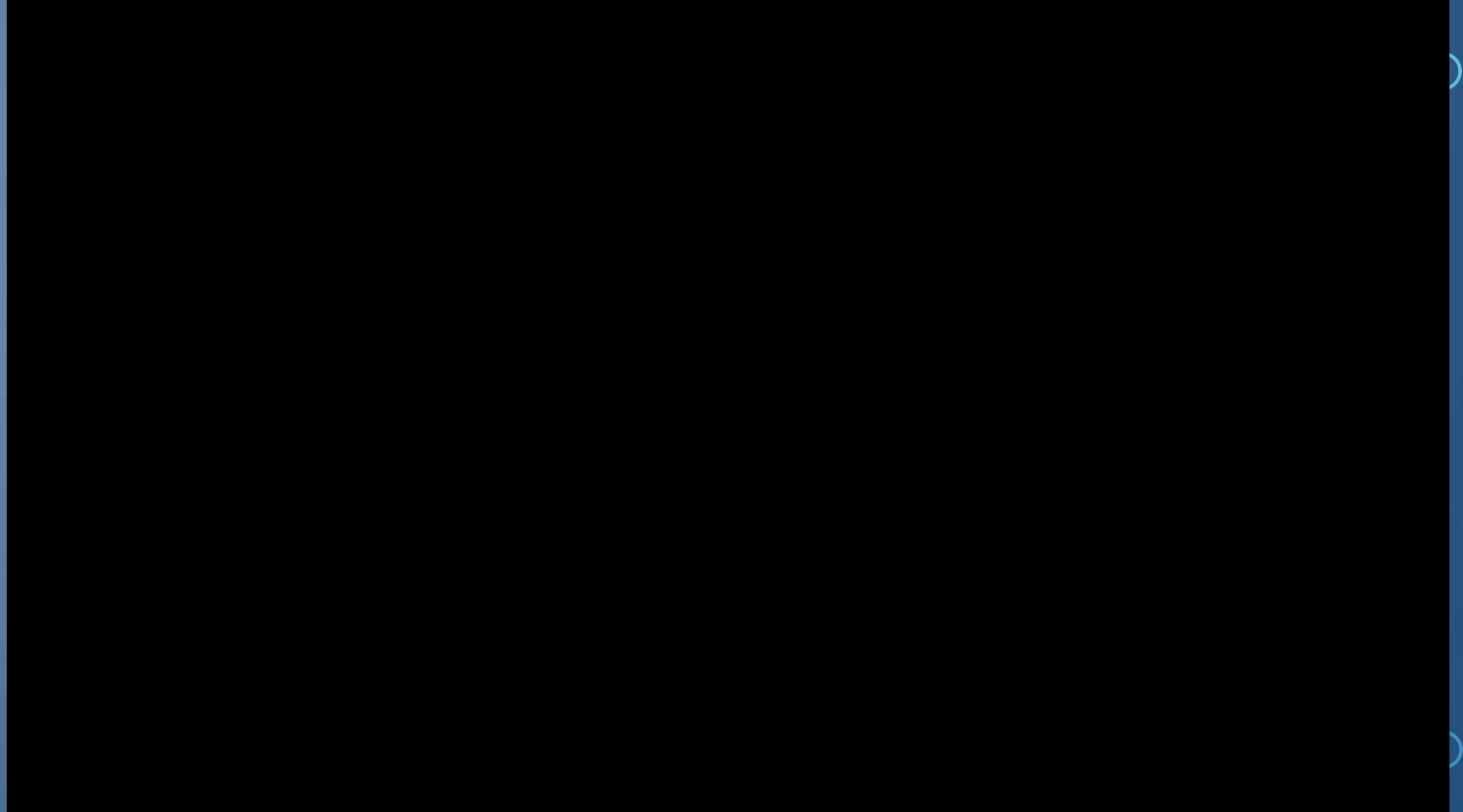
WE ARE LOOKING FOR A BETTER OUTCOME:

Injecting the vasopressin



WE ARE LOOKING FOR A BETTER OUTCOME:

Injecting the vasopressin



WE ARE LOOKING FOR A BETTER OUTCOME:

Myoma shaving after vasopressin



WE ARE LOOKING FOR A BETTER OUTCOME:

Myoma shaving after vasopressin



HOW CAN WE ASSES THE BETTER OUTCOME

How can we asses the scar?

How to assess the endometrium?

○ Ultrasound:


- Doppler of the spiral arteries,
- Doppler of the endometrial-subendometrial blood flow
- thickness of the endometrium,

○ Endometrial biopsy, blind or hysteroscopic guided



HOW CAN WE ASSES THE BETTER OUTCOME

We will perform a second-look hysteroscopy in 3 months and get a biopsy straight from the scar



SECOND-LOOK HYSTEROSCOPY FOR ENDOMETRIAL ASSESSMENT IN IVF PREPARATION

- Presence of pinopodes as a marker of the implantation window
- Positive expression of integrins ($\alpha v \beta 3$ and $\alpha 5 \beta 1$), LIF, VEGF, and HOXA-10 - markers of endometrial receptivity
- Absence of immune abnormalities (e.g., excessive NK cells or abnormal HLA-G expression)

WHAT ARE WE LOOKING FOR?

- Endometrial health and its receptivity for embryo implantation
- Histological evaluation
 - cellular structure and abnormalities
- Timing of biopsy
 - usually luteal phase
- Endometrial receptivity analysis - “window of implantation”

WHAT ARE WE LOOKING FOR?

- Morphological characteristics
 - decidualization, IL-6, IL-8
- Infection or inflammation
- Personalizing IVF protocols for improving implantation rates
- Therapeutic potential
 - treatment of underlying conditions before proceeding with IVF

TAKE HOME MESSAGES



CONCLUSIONS

We will add more cases to to have a more solid confirmation

We will meet at COGI 2025 in Rome and we will be able to bring THE CONCLUSION !

