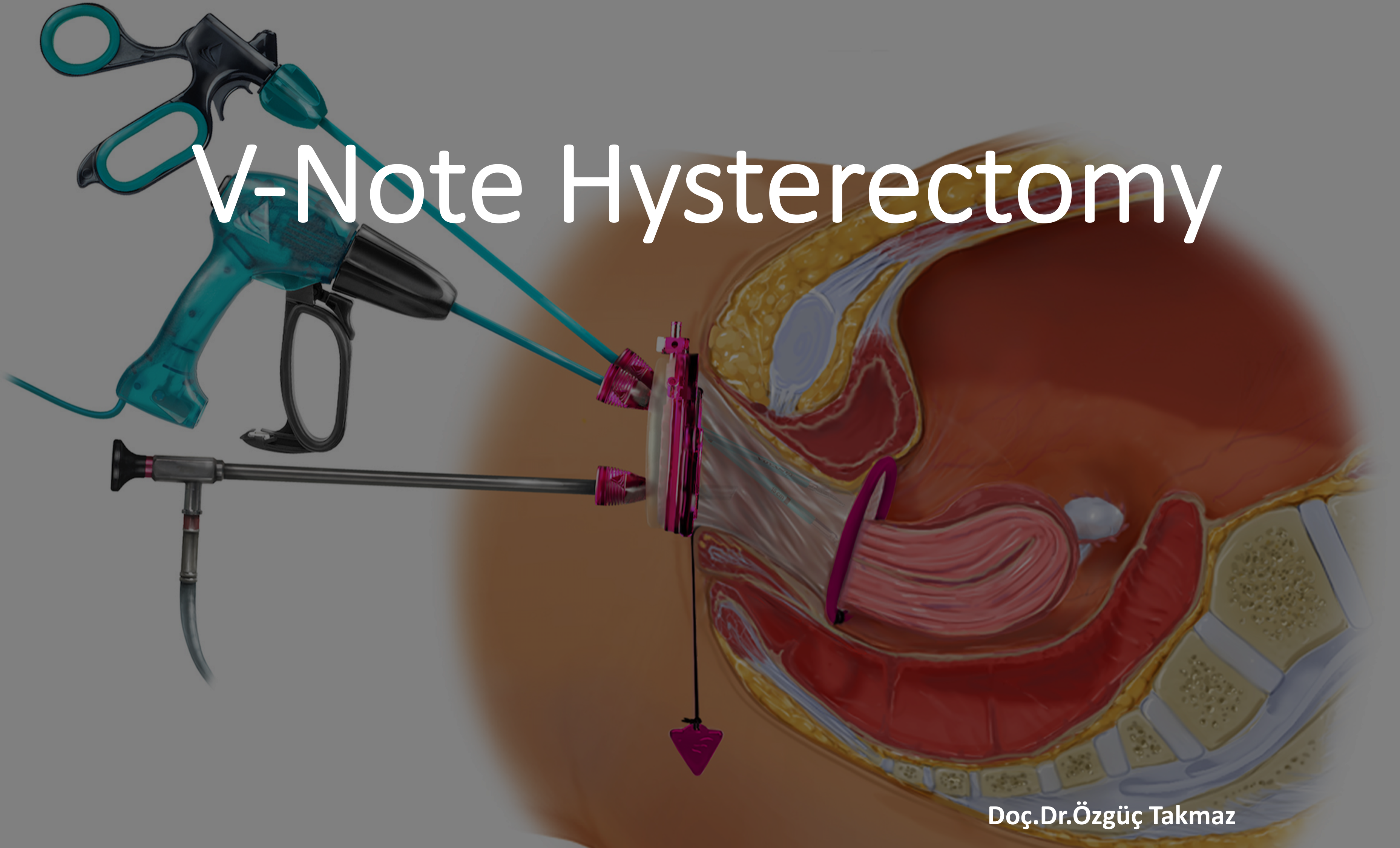
# V-Note Hysterectomy



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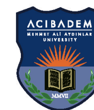
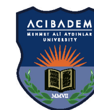
# NOTE Surgery

- **Natural Orifice** - mouth, vagina, anus, urethra,…
- **Transluminal** - because the access is not directly through the abdominal wall, goes through the **lumen** ,or cavity,of another organ
- **Endoscopic Surgery** - surgeon does not touch the organs
- **Transgastric (gNOTES), Transanal (aNOTES or TAMIS), Transurethral (uNOTES), Transvaginal (vNOTES)**
- Scarless surgery performed through an internal incision **behind the uterus** or in the **stomach wall** to access the abdominal cavity.



# Why NOTE Surgery?

- Less wound infections
- Fewer abdominal wall hernias
- Less abdominal wall pain
- Quicker recovery
- Shorter hospitalization
- Reduced health care costs??



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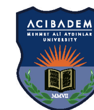
# Applications in Gynecology

- **Hysterectomy**
- Adnexal surgery,
- Myomectomy
- Sacrocolpopexy
- Lymphadenectomy
- Sentinel lymph node application



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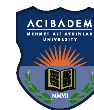
# Why V-Note Hysterectomy instead of vaginal hysterectomy?

- allows **visualization** in cases of limited vaginal access (nulliparity, obesity, limited uterine descent, and virginal status)
- Allows **adnexal access**
- Large Uteri??– hard in both L/S and Vaginal, applicable in V-Note



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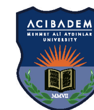
# History of procedure

- NOTES procedures were first performed in 2007 (appendectomy, cholecystectomy)
- Vnote- hysterectomy first described in 2012 *

*Hsuan Su et al, Hysterectomy via transvaginal natural orifice transluminal endoscopic surgery (NOTES): Feasibility of an innovative approach, Taiwanese Journal of Obstetrics and Gynecology,



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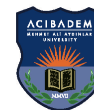
# Contra-indications

- obliterated cul-de-sac
- rectovaginal endometriosis
- Pelvic radiation
- Prior severe pelvic inflammatory disease
- Ovarian malignancy
- Prior rectal surgery
- Mesh sacrocolpopexy



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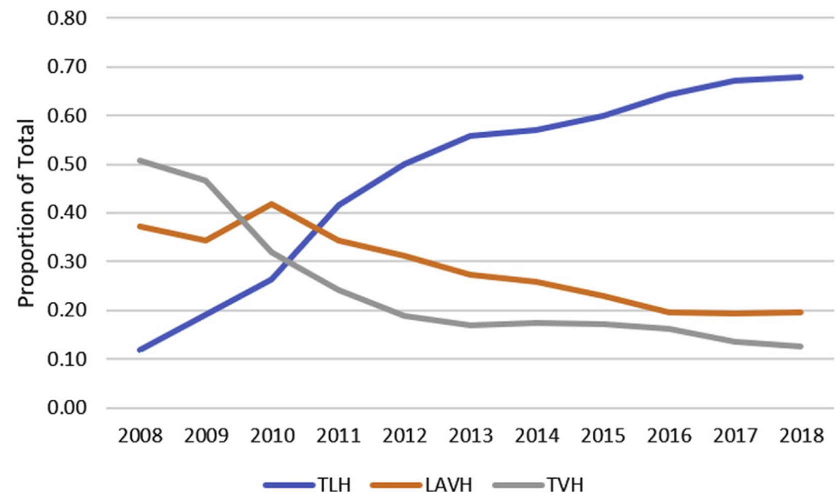
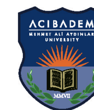
# Trends

- **ACOG** ; **Vaginal hysterectomy** is the approach of choice whenever feasible. Evidence demonstrates that it is associated with **better outcomes** when compared with other approaches to hysterectomy.(2021)




*LAVH*, laparoscopic-assisted vaginal hysterectomy; *TLH*, total laparoscopic hysterectomy; *TVH*, total vaginal hysterectomy.

*Luchristt et al. Trends in operative time and outcomes in minimally invasive hysterectomy. Am J Obstet Gynecol 2020.*



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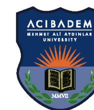
# Tecnique

- Cervical incision circumferentionaly
- Firstly entering into the peritoneal cavity through the posterior colpotomy
- Palpating the Douglas pouch
- Dissecting the sacro-uterine ligaments (Hanging for cuff)
- Entering into the peritoneal cavity from the anterior side
- Introduction of Alexis retractor
- Single site port placement (Gelpoint, glove..)
- $CO_2$ pressure of 10 mmHg and less Trendelenburg.
- Angled scopes are preferable
- Counter traction!
- Bipolar sealing instruments and advanced bipolar instruments are preferable.
- Similar to single-site surgery to address cluttering and loss of triangulation
- When complicated, proceed with either a traditional vaginal or laparoscopic approach



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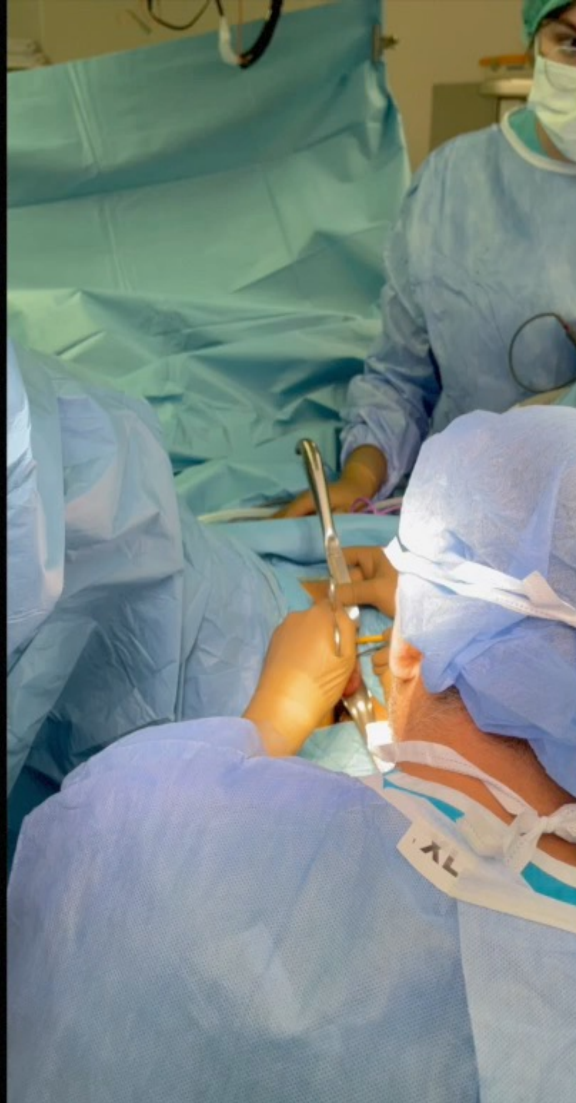

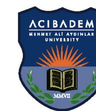

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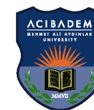
# Learning Curve

- Uncomplicated VNH is recommended as first case
- 20 cases for competency
- 80 cases for proficiency



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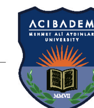
# Perioperative Outcomes

- Shorter OP times
- improved EBL,transfusion rates
- Less hospital stay
- Less pain scores compared with MPL hysterectomy
- One study V-note vs VH (Adnexal adv.)

| Trial | Design | Op Time | LOS | Compl | EBL | Pain |
|---|---|---|---|---|---|---|
| Halon (n=35) | Vnote vs L/S | Shorter | Shorter | Less | NA | Less |
| Wang et al (n=147) | Vnote vs LAVH | Shorter | Shorter | Compa rable | LESS | NA |
| Kim et al (n=40) | Vnote vs LAVH | Shorter | Compara ble | Compa rable | LESS | NA |

| Item | Wang 2014 | Y S Yang 2014 | Kim 2018 | Baekelandt 2019 | Kaya 2020 | C-Y Yang 2020 |
|---|---|---|---|---|---|---|
| study design | Retrospective chart analysis (Canadian Task Force Classification II-1) | Retrospective chart analysis (Canadian Task Force Classification II-1) | Retrospective chart analysis (Canadian Task Force Classification II-1) | RCT, non-inferiority trial, single blind | Cross-sectional study (retrospective) | Retrospective chart analysis (Canadian Task Force Classification II-1) |
| study setting | Single centre tertiary referral hospital | Single centre university affiliated hospital | Single centre university affiliated hospital | Single centre, teaching hospital | Single centre university affiliated hospital | Single centre university affiliated hospital |
| population | Women undergoing hysterectomy for benign uterine diseases in a non-prolapsed uterus aged 38–69 years Intervention: tVNOTEH ($n$ = 147) Control: LAVH ($n$ = 365) | Women undergoing hysterectomy for benign uterine diseases Intervention: NAVH ($n$ = 16) Control: SP-LAVH ($n$ = 32) | Women undergoing surgery for benign uterine disease, NAVH ($n$ = 40), LAVH ($n$ = 120) | Women 18–70 years old, undergoing hysterectomy for benign disease. vNOTES ($n$ = 35), TLH ($n$ = 35) | Women undergoing hysterectomy (TLH or vNOTES) for various gynaecological indications. vNOTES ($n$ = 30), TLH ($n$ = 69) | All women ($n$ = 183, aged 38–56 years) undergoing TLH or vNOTES during the study period vNOTES ($n$ = 31) and TLH ($n$ = 152) |



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# Cost

- Two studies have reported on costs as secondary outcome comparing vNOTES hysterectomy with laparoscopic hysterectomy.
- The first* reported no difference in direct hospital costs, the latter** reported an increased cost of vNOTES, which was attributed to the use of disposables.

*Baekelandt JF, et al. Hysterectomy by transvaginal natural orifice transluminal endoscopic surgery vs laparoscopy as a day-care procedure: a randomised controlled trial. *BJOG*. 2019; **126**: 105- 113.
**Wang C-J,et al, Hysterectomy via transvaginal natural orifice transluminal endoscopic surgery for nonprolapsed uteri. *Surg Endosc*. 2015; **29**: 100- 107.

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# Long-term Outcomes

- ??

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**Pros**

- Better **adnexial access** than vaginal hyst.
- Descensus deficit or restricted vaginal space can be overcome
- Better **visualisation** than vaginal surgery
- **No abdominal incisions**
- Pain, length of stay, EBL (experienced surgeons data??)

**Cons**

- **Not suitable for all patients** (endometriosis, obliterated douglas)
- Worser **visualisation** than L/S
- **Cost-**effectiveness??
- Long-term outcomes??
- Training curve (**both experience** for vaginal and endoscopic surgery)

# Future aspects

- **R**obotic-assisted **vNOTES** has been described as a novel scar-free approach (**Hominis** Surgical System)
- Robotic vaginal natural orifice transluminal endoscopic myomectomy (**DaVinci**)
- Robotic Transvaginal Natural Orifice Transluminal Endoscopic Surgery for Resection of Parametrial and Bowel Deeply Infiltrated Endometriosis (DaVinci)

Memic - Procedure animation
Daha sonra izle
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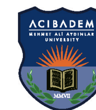

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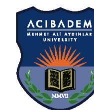
# Conclusion

- First data favors perioperative outcomes with limited studies
- Long term outcomes is not known – probably comparable with vaginal hysterectomy

- International NOTES Society



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# *Thanks…*

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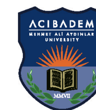

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