

A video presentation of robotic-assisted deep infiltrating endometriosis surgery

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Endometriosis

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graph TD; A[Endometriosis] --> B[Peritoneal]; A --> C[Ovarian]; A --> D[Deep infiltrating]; D --> E[Anterior Bladder]; D --> F[Posterior]; F --> F1[P1-Uterosacral ligament]; F --> F2[P2-Vaginal]; F --> F3[P3-Intestinal]; F3 --> F3a[P3a-Intestinal location (V+/V-)]; F3 --> F3b[P3b-Multiple intestinal location];
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The diagram is a hierarchical flowchart. At the top is a box labeled 'Endometriosis'. Three lines descend from it to boxes labeled 'Peritoneal', 'Ovarian', and 'Deep infiltrating'. From 'Deep infiltrating', two lines descend to 'Anterior Bladder' and 'Posterior'. The 'Posterior' box contains a list of sub-categories: P1-Uterosacral ligament, P2-Vaginal, P3-Intestinal, P3a-Intestinal location (V+/V-), and P3b-Multiple intestinal location.

Peritoneal

Ovarian

**Deep
infiltrating**

**Anterior
Bladder**

Posterior

P1-Uterosacral ligament

P2-Vaginal

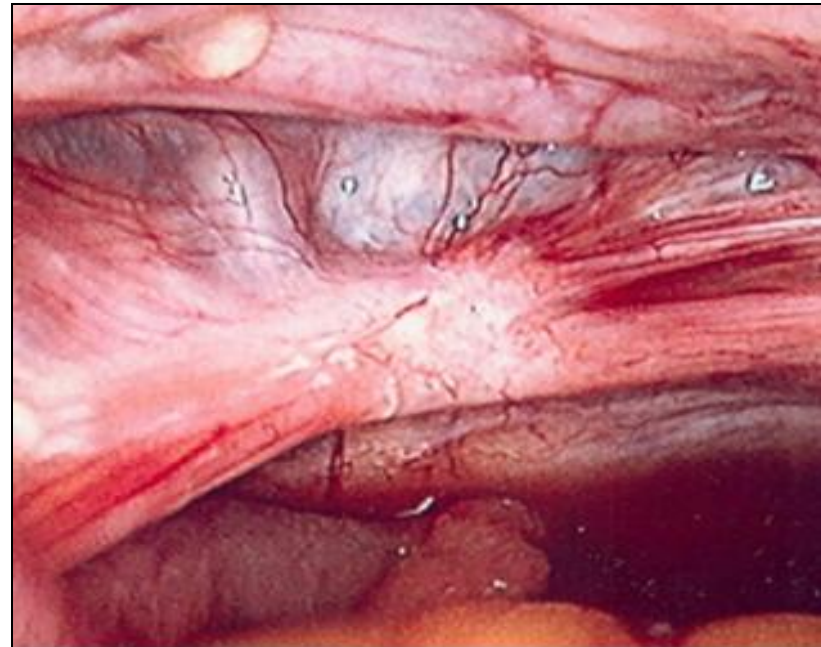
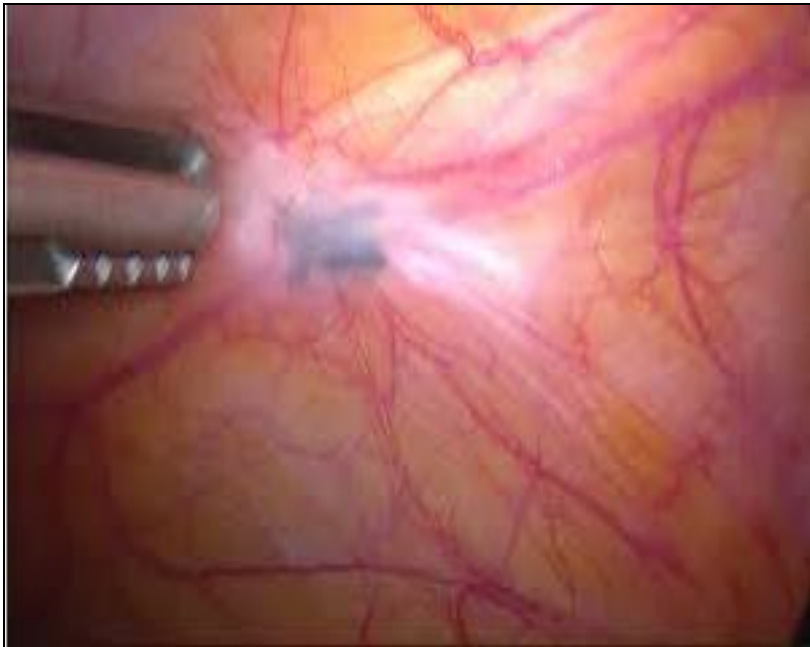
P3-Intestinal

P3a-Intestinal location (V+/V-)

P3b-Multiple intestinal location

Endometriosis

- Reproductive age women → %5-15
- Patients with infertility → %20-48
- Chronic pelvic pain unresponsive to hormonal treatment and NSAID → % 70



Deep Infiltrating Endometriosis

Deep infiltrating endometriosis is defined as lesions extending more than 5 mm underneath the peritoneum and pelvic organ wall.



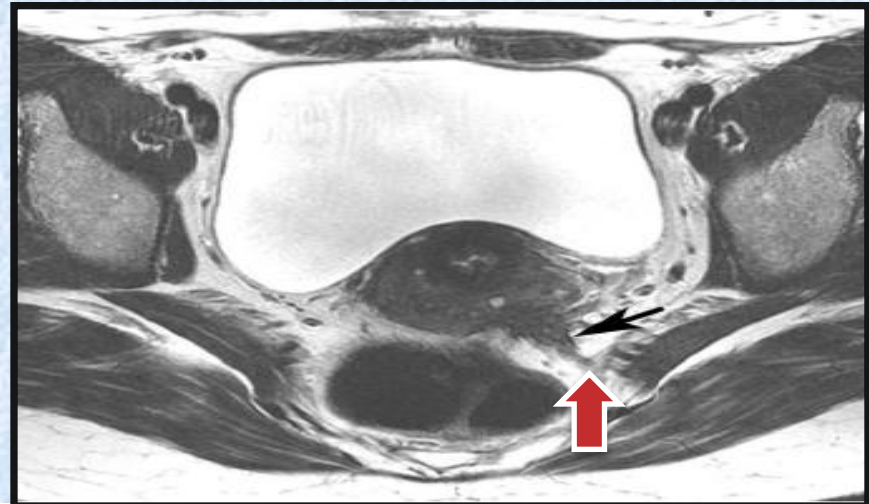
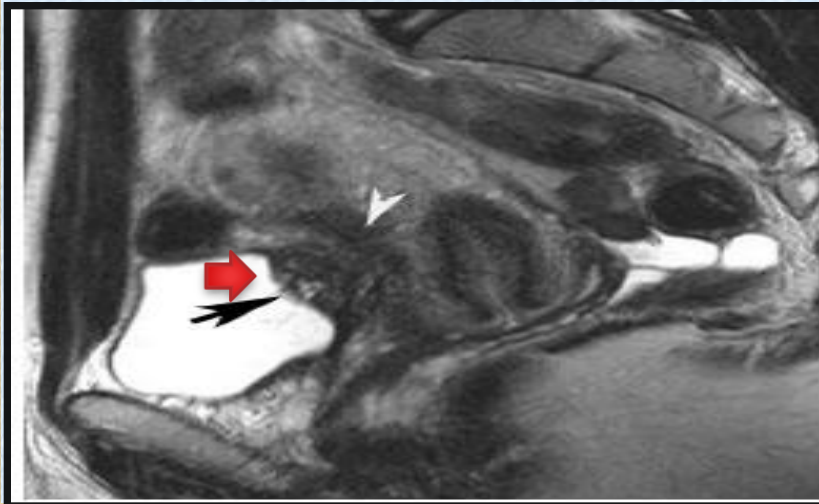
Douglas-anatomic measurements

	Depth (cm)	Volume (ml)
Normal pelvis	5.5±0.8	65.8±10.9
Endometriosis		
*Without deep lesions	5.3±0.8	67.2±18.1
*With deep lesions	3.6±1.6	41.6±19.3

Chapron (2004)

Diagnosis

- History
- Physical examination
- Imaging modalities
 - Transvaginal ultrasonography
 - Transrectal ultrasonography
 - MRI



Age	Pelvic pain (n=180)	Infertility (n=20)
Onset of symptoms(y)	20.5 (14.0-27.5)	23.5 (20.0-25.5)
Diagnosis	33.0 (20.0-34.0)	30.0 (20.9-32.0)
Median delay from onset of symptoms to diagnosis	7.4*	4.0*

* p<0.01

Arruda, Hum Reprod (2003)

History

Pain



(symptoms related to anatomic localization of lesions)

- **Pelvic plexus:** Dysmenorrhea, dyspareunia, noncyclic chronic pelvic pain
- **Intestinal:** Painful defecation, tenesmus, bleeding
- **Bladder:** Urinary tract symptoms, bleeding
- **Ureter:** Pain, hydronephrosis

Infertility

Physical examination and imaging modalities

TABLE 7

Comparison of the sensitivity, accuracy, LR⁺, and LR⁻ of physical examination, TVS, RES, and MRI compared to surgical and pathologic findings.

Test		PE	TVS	RES	MRI
USLs	Sensitivity	0.73 (0.63–0.82)	0.78 (0.69–0.87)	0.48 (0.37–0.59)	0.84 (0.77–0.92)
	Diagnostic accuracy	0.74 (0.64–0.82)	0.77 (0.69–0.86)	0.47 (0.36–0.56)	0.85 (0.77–0.92)
	LR ⁺	3.3 (0.95–11.1)	2.34 (0.93–5.96)	0.86 (0.45–1.06)	7.59 (1.19–48.3)
	LR ⁻	0.34 (0.22–0.58)	0.32 (0.18–0.60)	1.16 (0.73–3.91)	0.18 (0.10–0.31)
Vagina	Sensitivity	0.50 (0.32–0.68)	0.47 (0.29–0.65)	0.07 (0–0.16)	0.80 (0.66–0.94)
	Diagnostic accuracy	0.75 (0.66–0.84)	0.79 (0.71–0.88)	0.70 (0.60–0.79)	0.84 (0.76–0.91)
	LR ⁺	3.88 (1.85–8.11)	9.64 (3.00–31.0)	—	5.51 (2.94–10.3)
	LR ⁻	0.57 (0.40–0.83)	0.56 (0.40–0.70)	0.93	0.23 (0.11–0.48)
RV septum	Sensitivity	0.18 (0–0.41)	0.09 (0–0.26)	0.18 (0–0.41)	0.55 (0.16–0.75)
	Diagnostic accuracy	0.87 (0.80–0.94)	0.88 (0.81–0.95)	0.86 (0.79–0.93)	0.94 (0.87–0.98)
	LR ⁺	4.91 (0.92–26.2)	7.36 (0.50–109.5)	3.68 (0.76–17.8)	44.18 (4.73–286.8)
	LR ⁻	0.85 (0.64–1.13)	0.92 (0.76–1.11)	0.86 (0.65–1.14)	0.46 (0.32–0.95)
Intestine	Sensitivity	0.46 (0.34–0.58)	0.94 (0.88–1.00)	0.89 (0.83–0.98)	0.87 (0.79–0.96)
	Diagnostic accuracy	0.54 (0.44–0.65)	0.96 (0.91–1.00)	0.89 (0.86–0.97)	0.87 (0.83–0.95)
	LR ⁺	1.67 (0.87–3.19)	—	12.89 (3.54–51.8)	12.66 (3.31–48.37)
	LR ⁻	0.75 (0.54–1.03)	0.06	0.12 (0.05–0.22)	0.14 (0.07–0.26)

Note: PE = physical examination; TVS = transvaginal sonography; RES = rectal endoscopic sonography; MRI = magnetic resonance imaging; USLs = uterosacral ligaments; RV septum = rectovaginal septum; LR⁺ = positive likelihood ratio; LR⁻ = negative likelihood ratio.

Bazot. TVS, RES, and MRI for surgery in deep endometriosis. *Fertil Steril* 2008.

n=92

Surgical Decision

DIE lesions

Multifocality

Localization

Patient characteristics

Age

Desire for pregnancy

History of medical treatment

History of surgical treatment

Surgeon's experience

Laparoscopy

Laparotomy

Robotic surgery

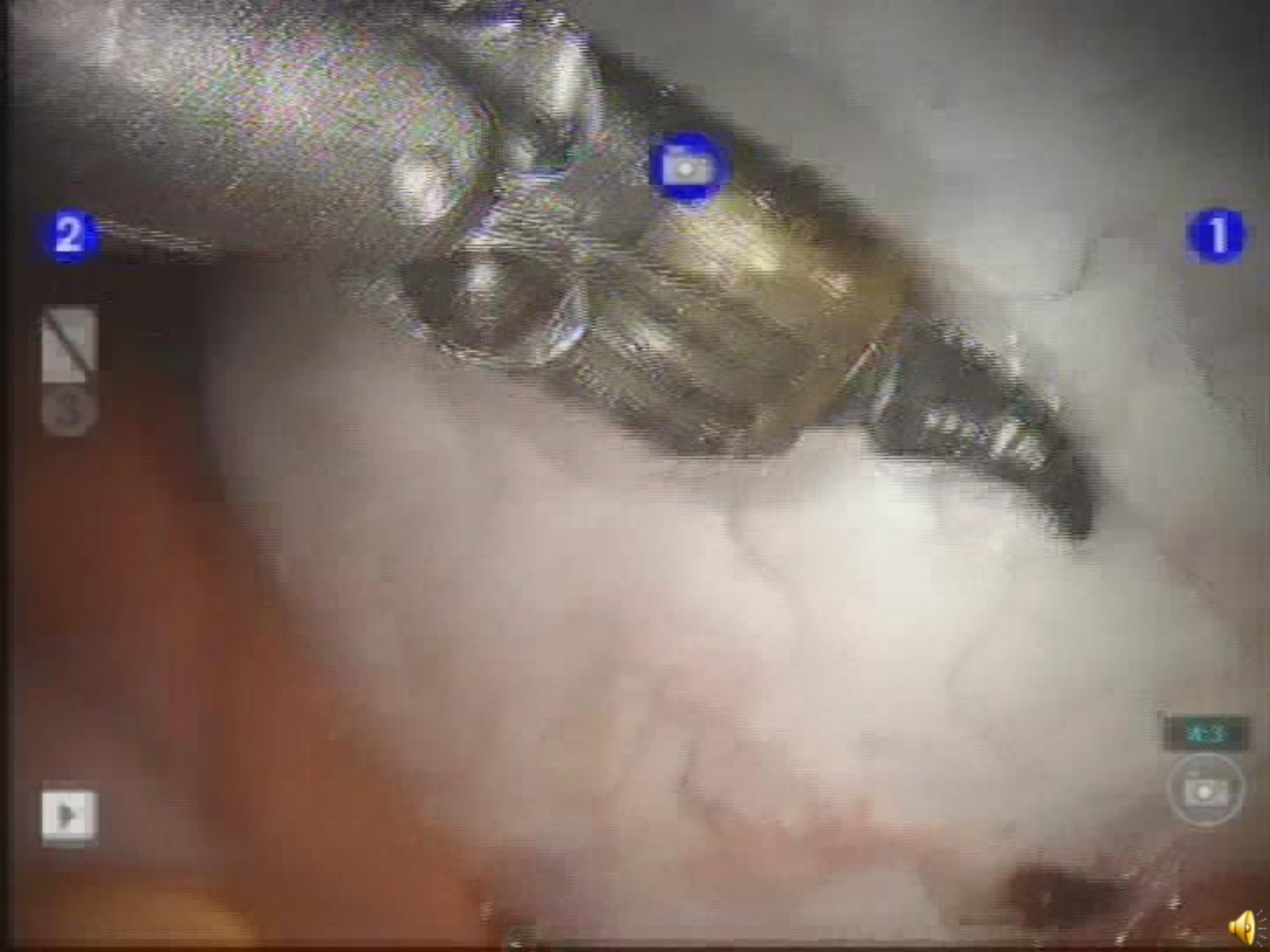
Intestinal DIE characteristics

Localization, depth, number of lesions, extend of pelvic adhesions

The treatment of the deep infiltrating endometriosis is **surgery** and the aim of the surgery is the **removal of all lesions**.

DIE is a disease which may effect uterus, ovaries, rectum, bladder, vaginal wall and neurovasculer branches

- **Vagina, Rectovaginal septum, Sacrouterine ligament**
 - Vaginal -laparoscopic assisted vaginal resection
- **Ureter**
 - Ureterolysis, resection
- **Appendix**
 - Appendectomy
- **Bladder**
 - Cystoscopy- resection
- **Rectum-Rectosigmoid- Small intestine**
 - Mucosa preserving resection"shaving"
 - Disc resection
 - Segmental resection;
 - ≥3cm single lesion
 - ≥%50 intestinal wall
 - ≥3 lesion which infiltrates muscularis layer



1

2



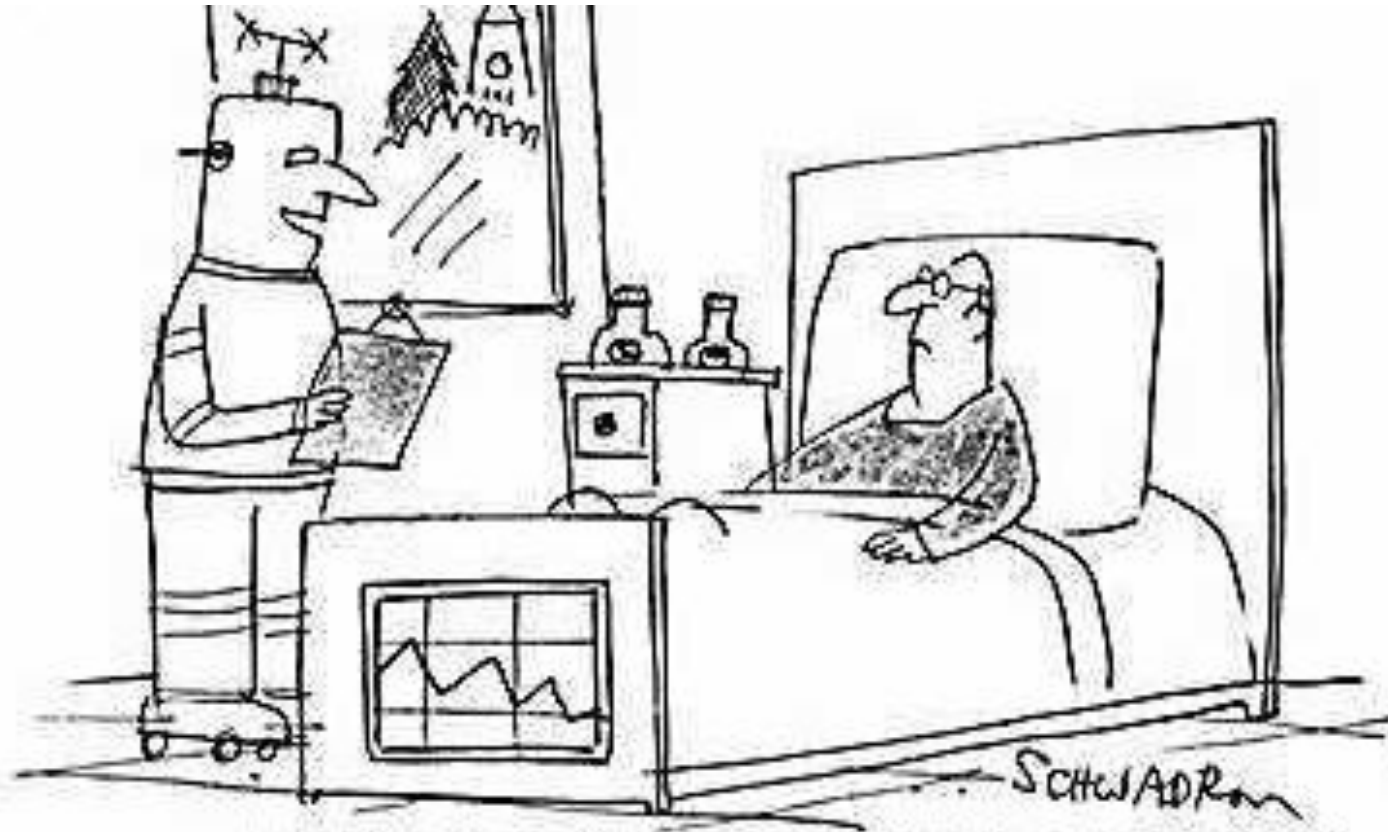
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Robotic Surgery – What it isn't...



"Hi, I'll be performing your surgery tomorrow."