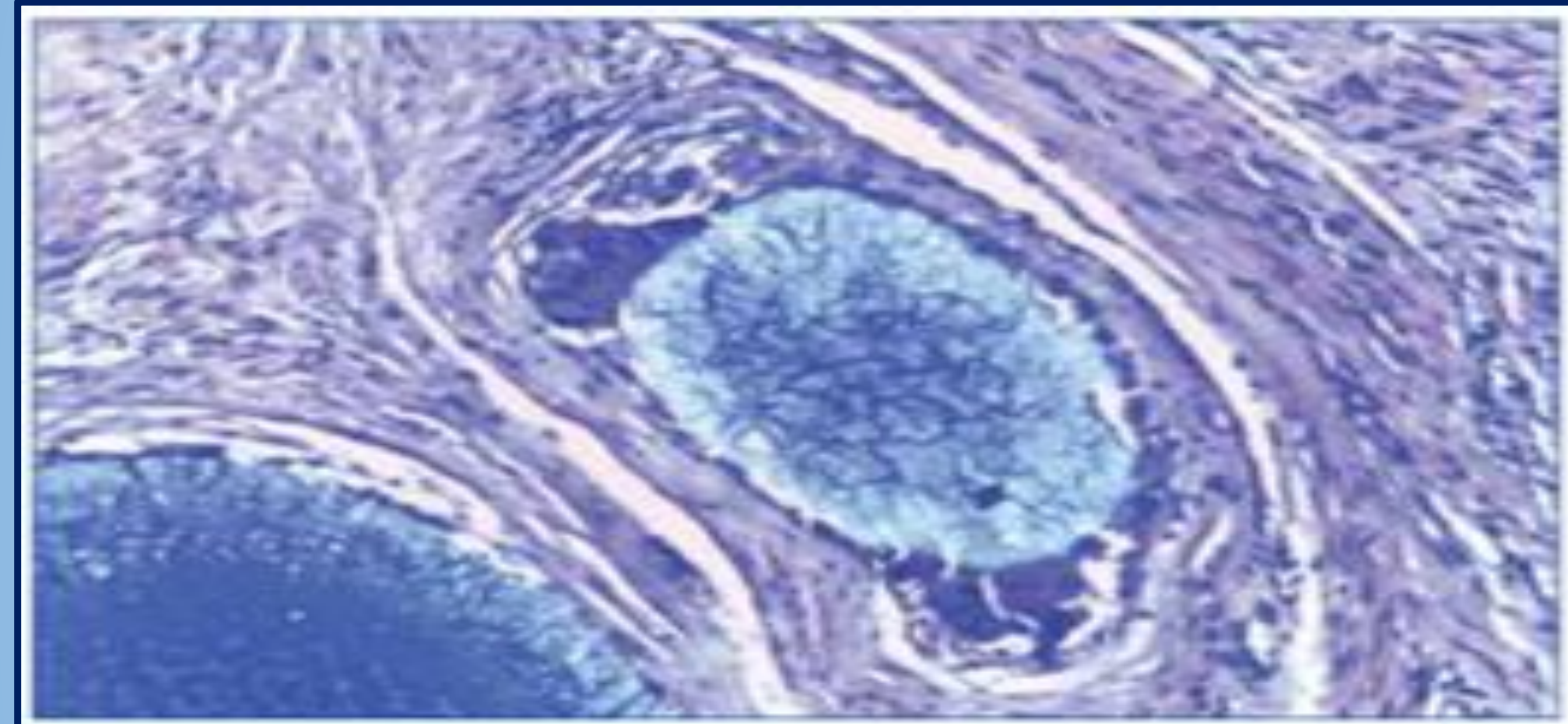


Introduction:

The most prevalent solid neoplasm in women of reproductive age is uterine fibroids (Middelkoop et al., 2021, p. 179). Although they hardly ever present as malignant tumors, these fibroids can significantly lower quality of life (Olaru, Pena, Ples, Sima, & Poalelungi, 2021, p. 92). Women frequently experience severe uterine pressure, dyspareunia, dysmenorrhea, and excessive bleeding.

Age, fibroid location, patient data, and most significantly, patient preference all affect how these neoplasms are treated.

Treatments for uterine fibroid include medication, uterine artery embolization, and more invasive operations including hysterectomy or myomectomy.



(Fig. 1 Olaru et al., 2021)

Image demonstrates a uterine fibroid prior to any interventional treatment.

Terminology:

What classifies each procedure?

Individual treatment options are classified by type of invasiveness, type of equipment and by techniques used. Commonly used terminology is listed below:

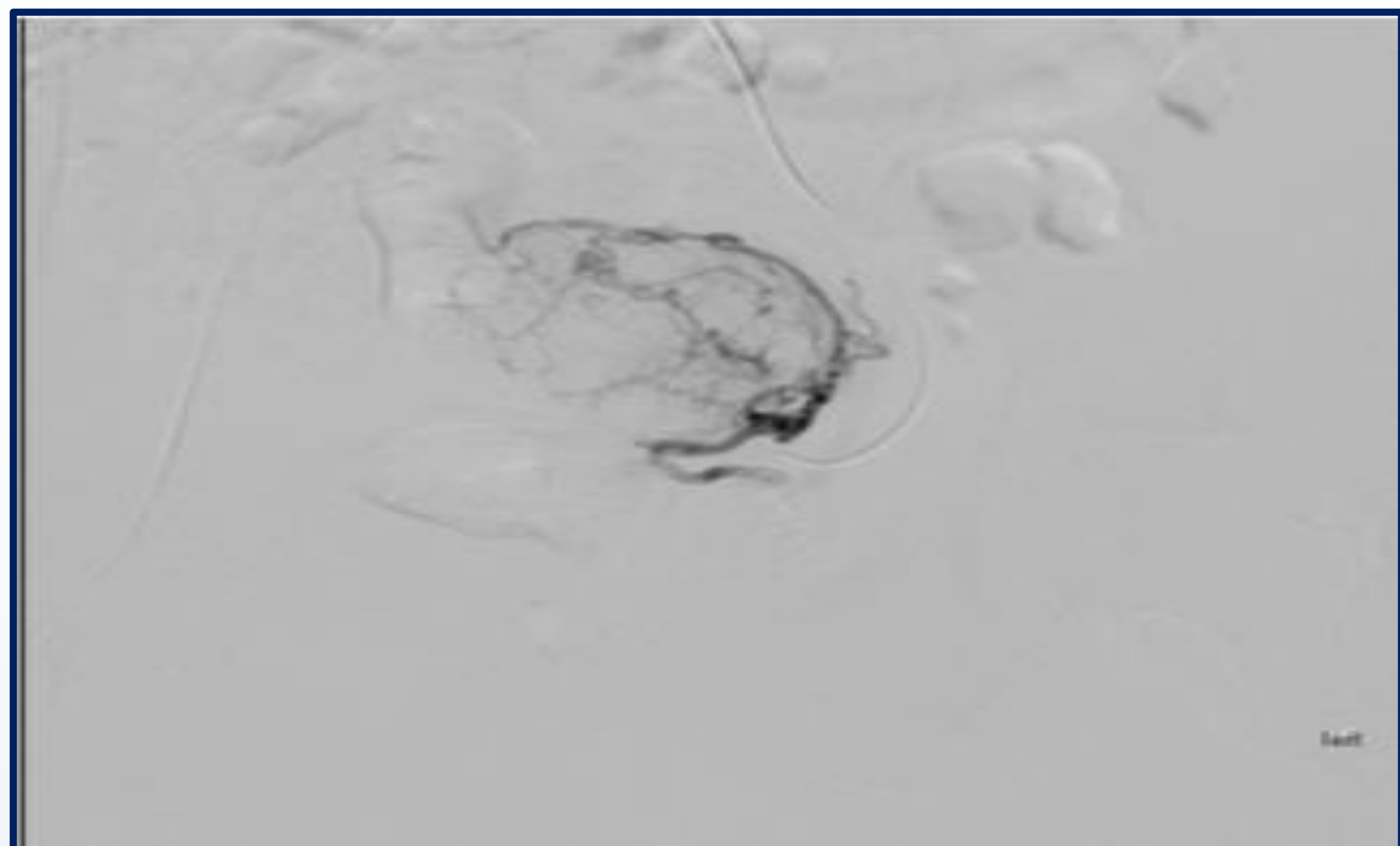
- Microscopic: as small as to only be visible using a microscope
- Laparoscopic: a procedure technique in which a thin tube is inserted through the abdominal wall; gives the ability to examine and access the abdomen without large incisions
- Incision: a surgical cut made into the flesh to access deeper structures
- Embolization: artificial development of an obstruction to an artery
- Seldinger Technique: thin-walled needle technique to gain access into a common vessel
 - A vessel is punctured with a sharp, hollow needle; a guide wire is advanced through the needle lumen, and the needle is withdrawn
- Fibroid: a noncancerous growth within the uterus

What is a minimally invasive approach?

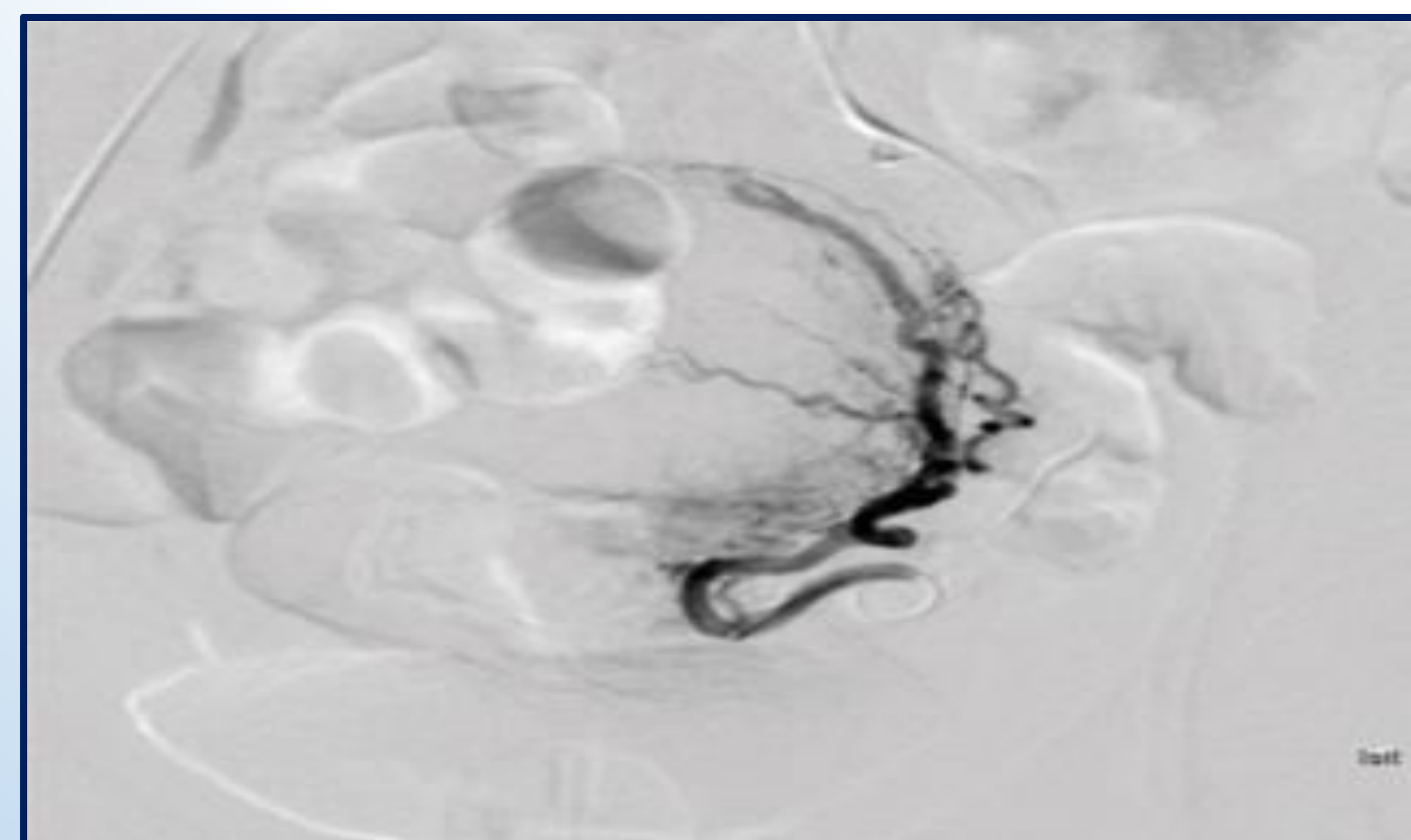
Uterine Artery Embolization (1):

In the process of embolization, the fibroid(s) are reduced in size and eventually die, due to the cut-off of blood flow. This option for therapy is thought to be minimally intrusive (Gencer, Gurken, Bayrak, & Cankoy, 2022, p. 305). Instead of the operating room, the interventional suite is where the procedure is performed. The steps in the process are as follows:

- Seldinger technique for access in femoral artery
- 5f sheath and catheter placed
- Embolic material of choice flushed into uterine artery
 - Polyvinyl alcohol
 - Gelfoam
 - Coils
 - Embospheres (Schwartz, 2014, p. 114)



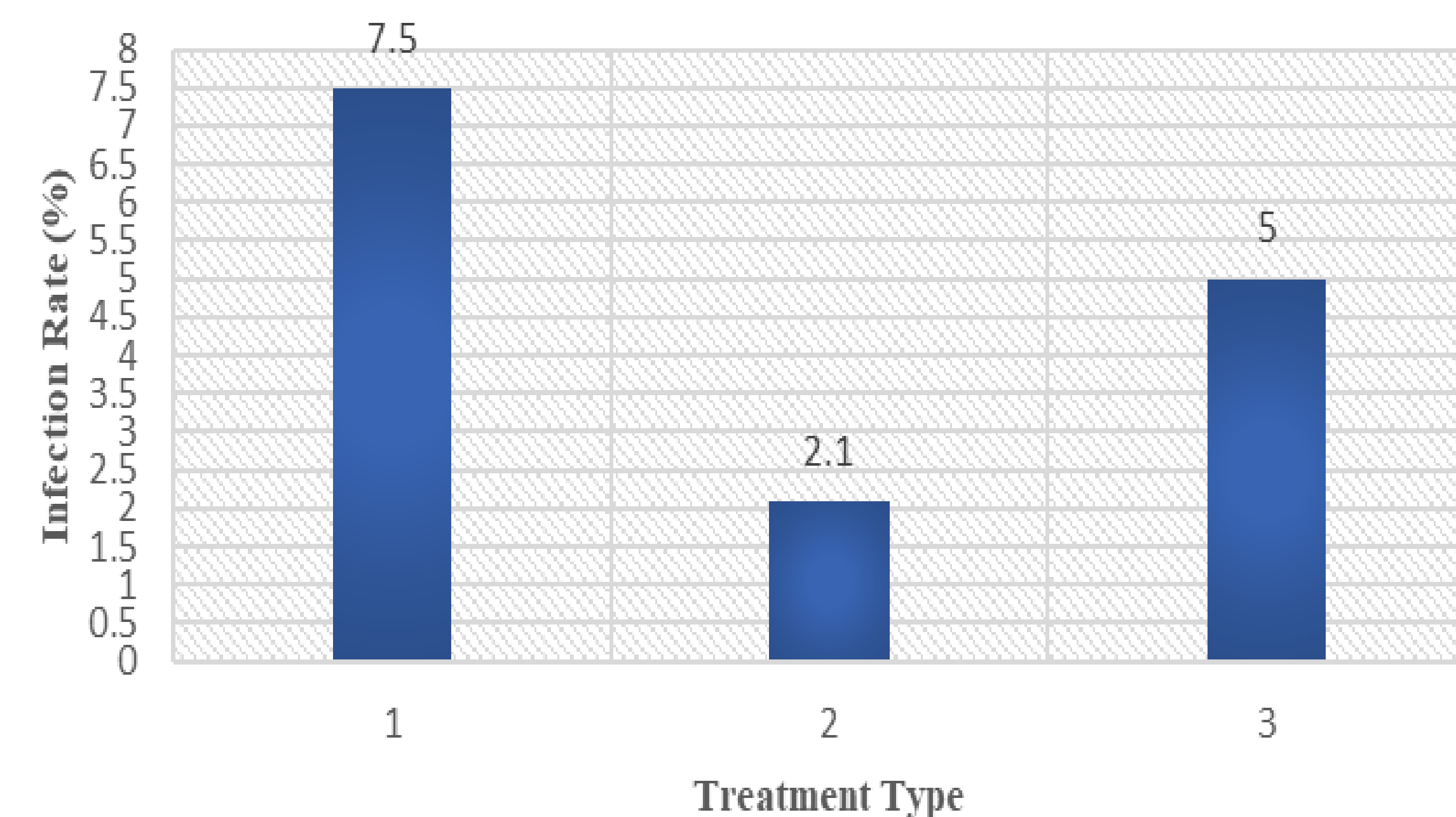
(Fig. 2 Gencer et al., 2022, p. 305)



(Fig. 3 Gencer et al., 2022, p. 305)

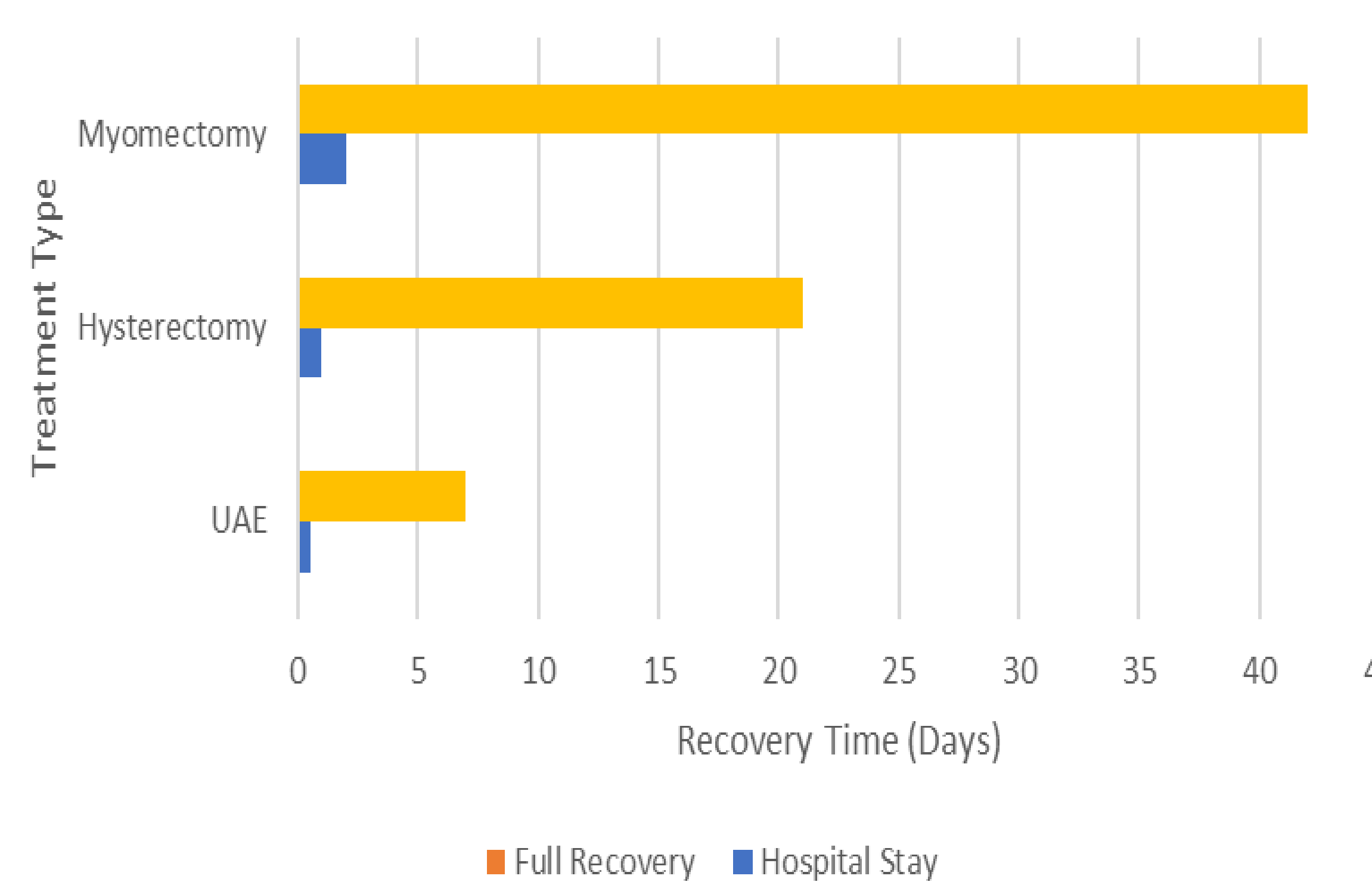
The images above demonstrates blood supply to a uterine fibroid before (fig.2) and after (fig.3) embolization of the uterine artery.

Infection Rates of Uterine Fibroid Treatments



(Mollier, Patel, Amoah, Hamady, & Quinn, 2020)

Post-procedural Recovery: Uterine Fibroid Treatments



(UCSF Health, 2020a,b,c)

What are surgical approaches?

Hysterectomy (2):

The uterus is taken out during a major surgical procedure called a hysterectomy. There are several surgical approaches that can be used to execute a hysterectomy.

- Vaginal Hysterectomy
 - The uterus is removed through route of the vagina
- Abdominal Hysterectomy
 - A horizontal incision is made on the lower abdomen, and the uterus is removed
- Laparoscopic Hysterectomy
 - Using a considerably smaller abdominal incision, a laparoscope is placed, and the uterus is removed (UCSF Health, 2020a)

Myomectomy (3):

Another surgery termed as a myomectomy can be used to remove uterine fibroids from the uterine muscle. The uterus is kept intact by the surgery.

- Laparoscopic Myomectomy
- Abdominal Myomectomy

Both strategies need a lower abdominal incision, with the abdominal strategy requiring a wider incision. The uterine muscle is stitched back together using stitches after the fibroid(s) have been removed (UCSF Health, 2020b)

Possible Procedural Complications

Uterine Artery Embolization	Myomectomy	Hysterectomy
<ul style="list-style-type: none"> ➢ Treatment failure ➢ Infection ➢ Premature menopause ➢ Non-target embolization ➢ Groin hematoma 	<ul style="list-style-type: none"> ➢ Severe blood loss ➢ Infection ➢ Fibroid regrowth ➢ Weakened uterine muscle 	<ul style="list-style-type: none"> ➢ Infection ➢ Blood loss ➢ Injury to intestines or bladder

(Bonine et al., 2020, p. 2)
(Schwartz, 2014, p. 117)

Conclusion:

Despite rarely presenting as malignant tumors, quality of life can be considerably reduced by uterine fibroids.

- Extreme uterine pressure
- Dyspareunia,
- Dysmenorrhea, and
- Heavy bleeding

Common treatment options include:

- Medication
- Uterine artery embolization
- Hysterectomy
- Myomectomy (Czuczwar, Stepanik, Milart, Paszkowski, & Wozniak, 2018, p. 4)

Theory states that with a shorter hospital stay and a smaller puncture/incision site, there exists a lesser chance of infection and procedural complication. Various studies have demonstrated that risk of infection and risk of complications exists with all uterine fibroid treatment options. Minimally invasive options decrease the overall amount of time spent in the hospital however the infection rate proves to increase. Treatment decision should also include discussion of fertility as well. All uterine fibroid treatments include risks and benefits. The ultimate decision lies within the patient (Middelkoop et al., 2021, p. 180)