UTERINE TUBES

I. INTRODUCTION

The uterine tubes or Fallopian tubes are paired musculomembranous tubes emerging from the cornu to the lateral pelvic wall. They constitute the site of fertilisation and transport of the zygote and communicate the uterine and peritoneal cavities. This organ has a major role in the process of reproduction and, consequently, must be explored in case of infertility.

II. DESCRIPTIVE ANATOMY

A- SITUATION

The Fallopian tube lies in the upper edge of the broad ligament, the peritoneal fold embracing it being the mesosalpinx. The mesosalpinx folds back with the tube and hides the ovary.

B- SHAPE

The uterine tubes are dark red coloured. They have a transverse course until the uterine end of the ovary, then, it follows, successively, the anterior border of the ovary, the medial face of its tubal end and its anterior free border. The Fallopian tube contains four, anatomically and functionally, distinct parts. (Figure 1)

The uterine part or intramural or also interstitial part is embedded in the uterine wall and emerge from the cornu. It has an oblique path upwards and outwards.

The isthmus is straight and narrow between the round ligament in front and the ligament of the ovary backwards. Its wall is thick when rolling between finger and thumb.

The ampulla is wide and is limper.

The infundibulum is a fimbriated open end behind the broad ligament adjacent to the lateral pelvic wall and ovary with a number of finger-like processes (trumpet-shaped expansion). This portion of the Fallopian tube is much affected by infections and can cause infertility, when the ampulla is the preferred site for hematic and purulent collections.

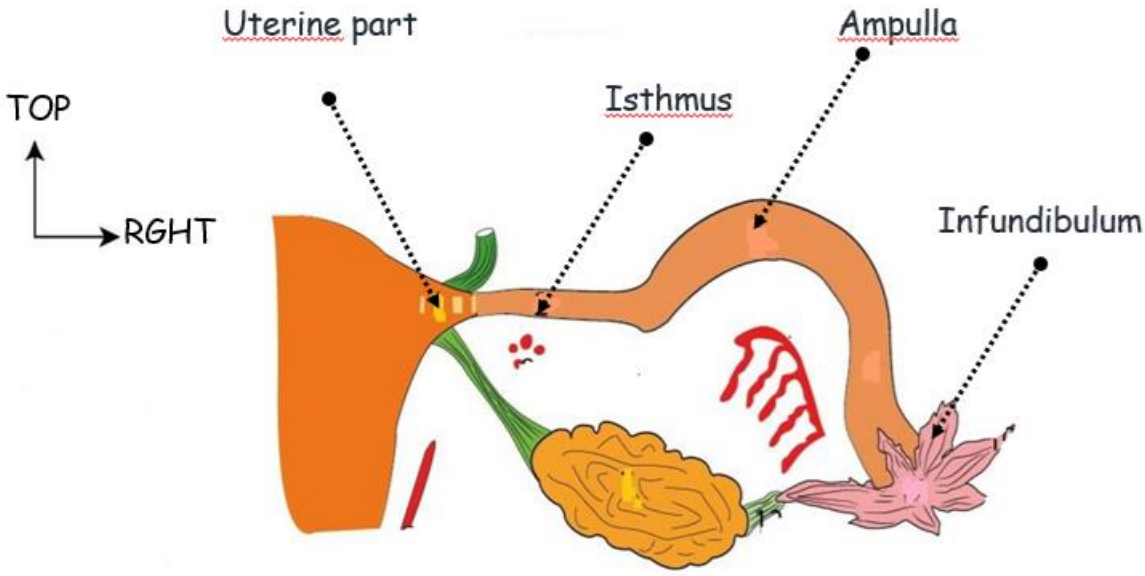

Figure 1: Posterior view of uterine tubes

C- DIMENSIONS

Uterine tubes are twelve to fifteen centimetres long. The ampulla is the longest part and measures seven to eight centimetres. The isthmus is three to four centimetres, the infundibulum two to three and the uterine part, the shortest, is one centimetre long. The internal diameter of the uterine tube is very variable. It does not exceed 0.2 millimetre in the uterine part and can reach eight millimetres in the ampulla.

III. STRUCTURE

The wall of uterine tube is formed of four layers. (Figure 2)

The serous coat is the outer layer, it covers the tube totally and is continuous with the broad ligament through the mesosalpinx.

The subserosa contains vessels and nerves.

The muscle layer, the myosalpinx, is, schematically, made of one longitudinal outer layer and one circular inner layer. In fact, the muscular fibres are randomly intertwined and are numerous in the isthmus, their number decrease from the isthmus to the infundibulum.

The mucosa is a simple columnar epithelium made of ciliated and non-ciliated secreting cells, it is continuous with the uterine mucosa through the cornu and with peritoneum through the infundibulum. The cilia beat towards the cornu favouring the transport of the zygote.

Macroscopically, it is thrown into folds, sparse in the isthmus and increasingly complicated as the ampulla is reached.

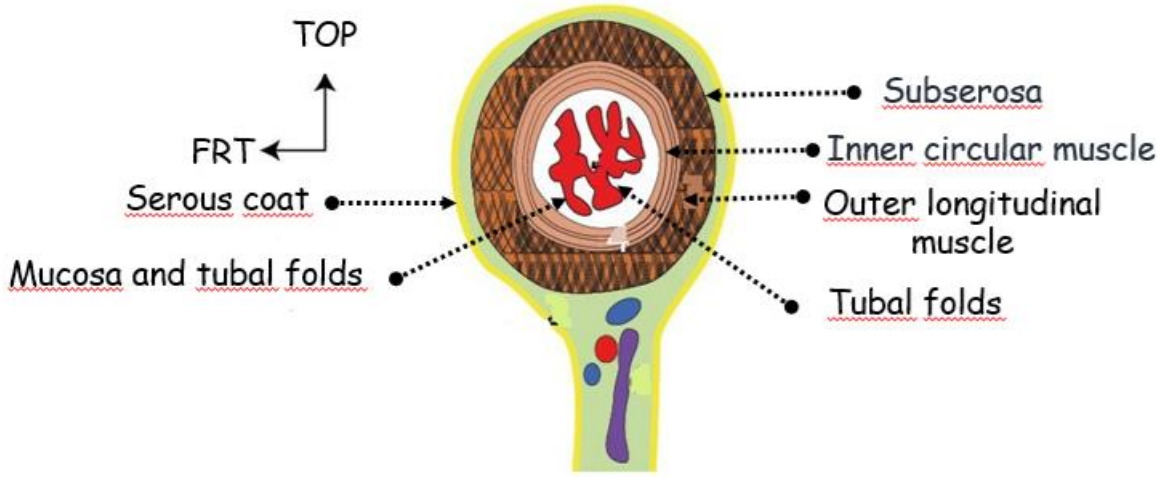

Figure 2: Sagittal section showing the structure of uterine tubes

IV. SUPPORTS

The Fallopian tubes are very mobile.

Though, they are fixed by the uterus through the uterine part of the tube.

In addition, they are fixed by the infundibuloovarian ligament that fixes the infundibulum to the tubal end of the ovary and contains the longest finger-like process of the infundibulum, it is continuous with the infundibulopelvic ligament.

Finally, they are fixed by the mesosalpinx, which is a peritoneal fold embracing the uterine tubes in the upper border of the broad ligament.

V. ANATOMICAL RELATIONS

A- PERITONEAL

The uterine tube is in contact, inside the mesosalpinx, with the anastomosis between the tubal branch of ovarian artery and the uterine artery, the anastomosis between the uterine veins and the ovarian veins, the nerves of uterus and ovary and the remnants of mesonephric tubules, the epoophoron and paroophoron.

B- VISCERAL

The anatomical relations of uterine tubes differ as we progress through their different parts.

In the uterine part and isthmus, they are in contact with the bladder and the round ligament in front and with the intestinal coils, greater omentum and sigmoid colon to the left on top.

In the ampulla and infundibulum, they are in contact on top with the caecum on the right and with the sigmoid colon and mesocolon on the left about three centimetres up.

VI. BLOOD SUPPLY, LYMPH DRAINAGE AND NERVE SUPPLY

A- ARTERIES

The uterine tube is supplied by three to four tubal branches that arise from the upper side of the terminal part of the uterine artery, they supply the isthmus, as well as three to four branches that arise from the upper side of the tubal branch of the ovarian artery, they supply the infundibulum.

The anastomosis between the uterine artery and the tubal branch of the ovarian artery forms the infratubal arterial circle. The infratubal arterial circle runs below the tube, between the layers of the mesosalpinx.

A collateral branch of the ovarian branch of the uterine artery, often, joins the infratubal circle.

The microcirculation of the tube is concentrated in the subserosa, although, each layer of the uterine tube is supplied by capillaries.

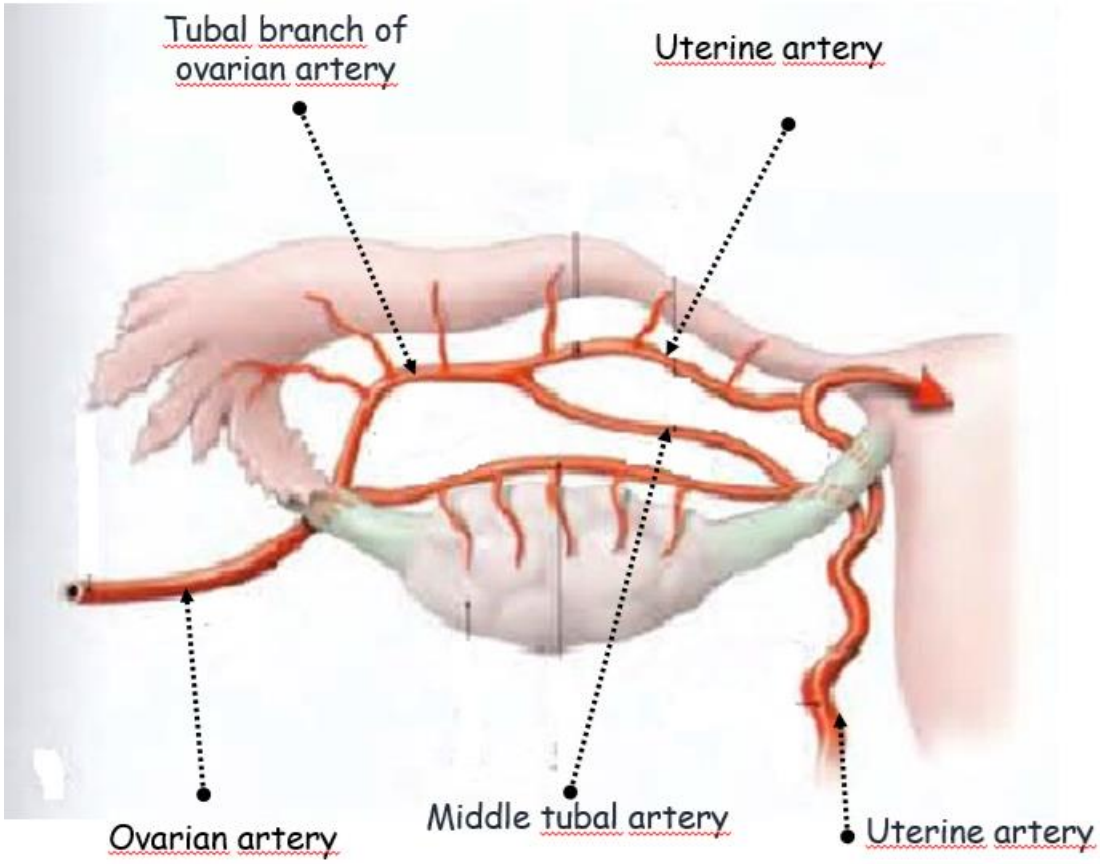

Figure 3: Overview of the arteries of the uterine tubes and ovaries

B- VEINS

The veins all correspond to the arteries and thus drain to the uterine and ovarian veins.

C- LYMPH DRAINAGE

The lymphatics of the uterine tube pass back along the veins to the lymph nodes of the body of the uterus mainly and the lymph nodes of the ovary secondarily.

D- NERVES

The nerves of the uterine tubes are branches from the inferior hypogastric plexus (T10-L1).

VII. CONCLUSION

Fallopian tubes are the normal and most frequent site of fertilisation. They occupy the upper edge of the broad ligament and are in contact with several peritoneal and visceral relations. It is a very mobile organ that benefits from a rich anastomotic blood supply which considerably reduces the ischemic risk during surgery, its lymph drainage is ensured mainly by the external iliac nodes.