

## National Physicians Cooperative of the Oncofertility Consortium<sup>®</sup>

### Section 8. Tips for Removing an Ovary for Cryopreservation and the Role of Pathology

#### Background:

1. Removal of an ovary for fertility preservation differs from a simple oophorectomy in several important ways:
  - The tissue must be protected from tissue necrosis by minimizing the time that the blood supply is clamped
  - The removed tissue must be kept **STERILE** and **COLD (0-5°C)**
  - If pathology removes a portion, it must be done in a way that maintains sterility
  - The tissue must be transported to the lab and processed within an hour of collection to maintain the viability of the tissue and the oocytes within

#### Experiences and Logistics:

##### Pathology

Some concepts to keep in mind when freezing ovarian tissue and collaborating with pathology:

- Each pathology department will have their own standard operating procedures for examination of an ovary (even a completely normal ovary) that is removed for surgery. Some approaches that we have observed around the Consortium include:
  1. Gross examination of both ovaries to determine if they appear normal by either pathology or the surgeon with no further sampling.
  2. Having the lab take a slice through the ovary that is removed for cryopreservation and submit it to pathology in fixative for examination so that they can confirm that it is ovarian tissue, contains follicles, and is normal.
  3. Pathology may reserve the right to have the frozen patient tissue returned to pathology for more complete examination if an abnormality is found. In this case, the patient may have no tissue available for fertility preservation.
  4. We do NOT recommend that that pathology take a section of the ovary in the OR. We have observed that the dissection of the ovary frequently yields mature oocytes in the dish that is used for dissection. It is in the patient's best interest to be sure that these dissections occur in a lab where the oocytes can be rapidly isolated and placed in culture media.
  5. Inclusion of BRCA+ patients is up to the discretion of enrolling institution

- When pathology removes their portion of the tissue, they must **maintain the sterility of the tissue**
- The whole ovary is NOT frozen; **the ovarian cortex is the only portion that is frozen**. The remainder of the ovary is not usable for fertility preservation (the cortex is also often the portion that pathology is most interested in).
- Optimally, the entire ovarian cortex will be available for freezing; when this is not possible, we suggest that the patient not be enrolled in the study
- Knowing that treatment plans sometimes change intraoperatively, **IF** pathology requires large amounts of tissue for examination, we suggest a minimum sample size for freezing for PATIENT's own use is 6 pieces of cortex measuring 5X20X1 mm (this is suboptimal but is the minimum amount that should be available for the patient).
- Experience indicates that some patients enrolled in the study preoperatively will not have any tissue available for cryopreservation once surgery occurs (for example, unexpected findings at surgery may mean that the entire ovary is required by pathology for staging). Patients should be made aware of this possibility during the informed consent process.
- Pathology will make the final call concerning tissue availability and this may affect the whether a patient is included in the study
- Develop a good working relationship with pathology early

#### Tips on the Surgical Procedure:

- Maintaining blood flow to the ovary is an important consideration during the oophorectomy. For salpingo-oophorectomy, we recommend starting the dissection at the utero-ovarian ligament and working towards the infundibulopelvic (IP) ligament. This will best preserve the blood flow to the ovary. Place the Endobag underneath the ovary in preparation for ligation of the IP ligament. Once the IP ligament has been desiccated and transected, the fallopian tube and ovary will fall into the Endobag and can quickly removed from the abdomen.
- For oophorectomy only, with maintenance of an intact fallopian tube, start the dissection at the mesovarium and move towards the IP ligament. Follow the same procedure as above.
- Avoid damage to the fallopian tubes particularly if future ovarian tissue transplant is planned.
- For patients with ovarian cysts or masses:
  - If you are planning ovarian tissue cryopreservation using tissue from an ovary containing a cyst or mass, obtain tissue away from the mass or, optimally, from the contralateral ovary. In our experience, tissue overlying a cyst or mass is thin,

difficult to appreciate normal structures, and devoid of any follicles, as is most tissue obtained from an ovary with any appreciable mass (including non-cancerous ones like endometriomas). In an effort to provide the best opportunity for future fertility for our cancer patients, we recommend obtaining normal appearing tissue from the contralateral ovary.

- Be mindful of the laparoscopic instruments used during the procedure, principally if the entire ovary is not removed but rather a portion is biopsied. Bipolar electrosurgical instruments, including the tripolar instrument, are particularly damaging to the ovarian tissue given the wide lateral spread of the currents. The harmonic scalpel or the Ligasure device work well.