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INTRODUCTION

Advances in diagnostic and new therapeutic approaches in cancer treatment are increasing the attention to the fertility problems arising from this disease. Cryopreservation of ovarian tissue is the main option for fertility preservation of reproductive age and prepubescent women who need oncological treatment and can not postpone it. However, this technique remains restricted to specialized oncofertility services in Brazil and beginning a family becomes a limitation for cancer survivor patients.

OBJECTIVE

The study aims to establish and optimize the ovarian tissue cryopreservation technique using the bovine experimental model, in order to preserve fertility in women with cancer.

METHODS AND RESULTS

This research will be performed between March 2017 and February 2018. Transport of ovaries, from collection place to the processing laboratory, was tested and validated. Samples are kept in transport solution in the ideal temperature (4 to 10 °C) during the necessary period. Fragmentation of ovarian tissue, using the Tissue Slicer equipment, was established with approximately 5 mm x 5 mm and 0.5 to 1.0 mm thickness, preserving only the ovarian cortex for the adequate penetration of cryoprotectant (Figure 1). Slow progressive freezing is the adopted technique used for cryopreservation. Hematoxylin and Eosin (HE) staining will be performed to verify the structural characteristics of the fresh tissue and the frozen/thaw tissue. The first of the 3 freezing experiments was successfully performed and the samples (n = 20) were stored, waiting for next steps.

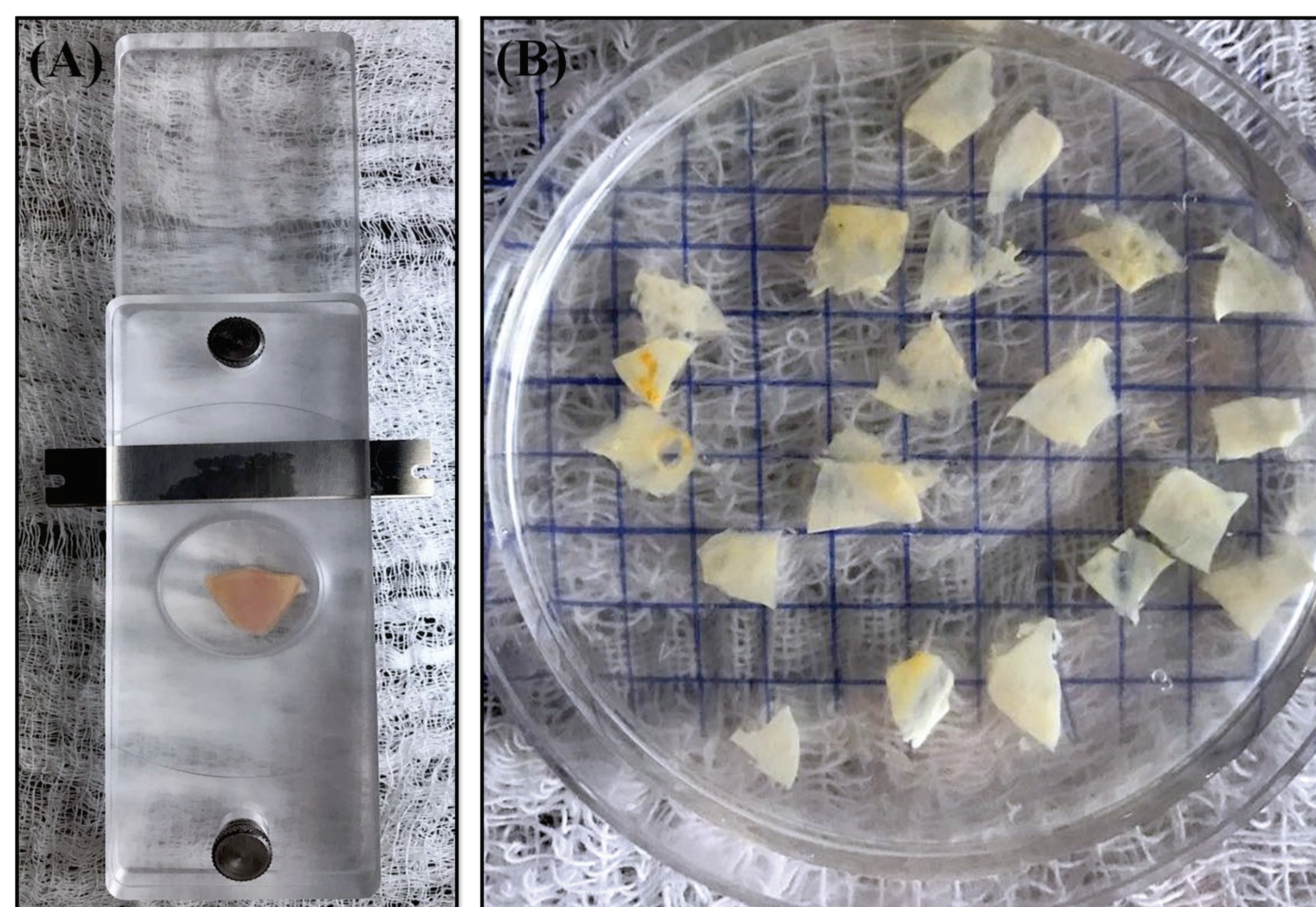


Figure 1: (A) Ovarian cortex dissection using the Tissue Slicer. (B) Fragments of ovarian tissue measuring approximately 5 mm x 5 mm and 0.5 to 1.0 mm thickness.

FOLLOWING STEPS

Increase the number of cryopreserved ovarian tissue samples using the established techniques and test the rapid tissue thaw protocol for further evaluation of the tissue structural integrity by HE and cell viability by fluorescence method.

WIDER IMPLICATIONS IN THE FUTURE

The goal of this study is to offer to women with cancer the choice to preserve their fertility through the ovarian tissue cryopreservation in the National Cancer Institute. This implementation is also an opportunity for new researches that investigate the risk of transferring malignant cells in transplanted ovarian tissue. These strategies are crucial for the life quality improvement of oncological patients after treatment.

KEY WORDS

Oncology; Oncofertility; Fertility preservation; Ovarian tissue cryopreservation.