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**Poster presentation only?** No

**Are you a fellow in training in an American Board of Obstetrics and Gynecology**

**approved program leading to certification in Reproductive Endocrinology and Infertility?** No

**Data is submitted for a separate scientific abstract and video presentation:** No

**Awards:**

In-Training Awards for Research

SRS In-Training Award for Research

**IRB Approval:** The study material in this abstract has been approved by the local Institutional Review Board (IRB) if any human subjects or any human material was utilized.

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**Title:** DNA damage in metaphase II oocytes is induced by peritoneal fluid from endometriosis patients

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**Objective:** Both nuclear and cytoplasmic maturation is necessary to ensure optimal conditions for subsequent fertilization. Disturbances in these processes may result in different morphological abnormalities depending on whether nuclear or cytoplasmic maturation is affected. DNA damage to the oocyte as a result of endometriosis may be associated with a higher frequency of aneuploidy and fertilization failure. The aim of our study was to examine the extent of DNA damage to the oocytes following exposure to peritoneal fluid (PF) from patients with endometriosis.

**Design:** Prospective controlled study

**Materials and Methods:** 62 mature frozen metaphase II mouse oocytes were divided into 3 groups as shown in the table. All groups were exposed to PF + HTF (50:50, vol./vol.). For controls, 30 oocytes were randomly divided into 3 groups (n = 10) and incubated simultaneously with the PF of patients with tubal ligation. Both PF and control groups were assessed for the total number of oocytes showing DNA damage by confocal microscopy. The DNA damage was categorized as negative (no damage), weakly positive and positive (indicating damaged DNA).

**Results:** Significant DNA damage was seen in the oocytes that were incubated with PF of patients with endometriosis compared with the control group (see Table). DNA damage increased with increased exposure to the peritoneal fluid of endometriosis. Marked damage was seen in oocytes incubated for 4 hours compared to the oocytes incubated for 30 min.

**Conclusions:** Endometriosis is associated with oxidative stress and leads to DNA disruption. The extent of damage is affected by the duration of exposure of the oocytes to the peritoneal fluid environment. This may lead to failure of fertilization or implantation and may be one of the contributing factors associated with infertility in patients with endometriosis.

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