



## Fine-Needle Aspiration Biopsy in the Diagnosis of Umbilical Injury, Originated in Stomach, Endometrium and Ovary

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### Abstract

The navel is an unusual site to metastasis or endometriosis implants. Endometriosis is the endometrial glandular tissue outside the uterine cavity. An incidence of endometriosis implants after gynecological surgeries in to navel of 0.3% to 1% has been reported. In this report, we presented three cases of endometriosis and two patients with the sister Mary Joseph sign in the umbilicus (it means a metastasis to the navel) with stomach and ovary tumor who were diagnosed by Fine Needle Aspiration (FNA) from the Dinamica Laboratory and at the Pablo Tobón Uribe Hospital in Medellin, Colombia. Fine needle aspiration biopsy is a simple and inexpensive method that allows the diagnosis of endometrial implant lesions and navel metastases.

**Keywords:** Fine-needle aspiration biopsy; Umbilical injury; Metastasis

### Introduction

Endometriosis is a relatively common disease, defined as the presence of functional endometrial tissue outside the uterus [1,2], it affects up to 15% of menstruating women [3,4]. Ectopic endometrial tissue is identified as endometrial glands and stromal tissue usually accompanied by hemosiderin-laden histiocytes. Most of the time, histologic identification of two of the three components could be sufficient for the diagnosis [1]. Commonly involved sites include the pelvic peritoneum and ovaries [3,4], but involvement of extrapelvic sites such as the abdominal wall, umbilicus, gastrointestinal tract, urinary tract, and inguinal region has also been described [5,6].

Fine-needle aspiration may be chosen as the initial approach to determine the nature of the lesion [7]. Due to the rarity and occasional atypical cytological features of extragonadal, extra-pelvic sites, and cutaneous endometriosis, cytologic interpretation on FNA can be quite challenging and could be a diagnostic pitfall [8,9], such as: benign hemorrhagic cyst, follicular cyst, hematoma, endosalpingiosis, and adenocarcinoma, especially in aspirates of intra abdominal, pelvic sites, and effusion fluid samples from hemothorax and hemoperitoneum [10]. We report three cases of endometriosis and two patients with the sister Mary Joseph sign in the umbilicus (it means a metastasis to the navel) with stomach and ovary tumor, diagnosed by FNA in Medellin-Colombia.

### Case Presentation

Three women between 32 and 38 years old with clinical history between 1 and 2 years of evolution of sensation of painful abdominal wall mass. The first patient with a mass in a previous cesarean scar section that was enlarged and it hurt with menstruation; the second and third woman with painful umbilicus nodule, associated with a personal endometriosis antecedent by laparoscopy (Figure 1). One of them with a history of umbilical herniorrhaphy (Figure 2). The first patient was performed an ultrasound in which they report mass in hypogastrium and suggest discard injury neoplastic, reaction of body strange or endometriosis And the third patient was performed a tomography in which they reported a 5 mm diameter image. All FNA They showed glands, histiocytes on a hemorrhagic background with inflammatory infiltrate.

The fourth patient diagnosed with adenocarcinoma of cells in seal ring originated in the stomach with an umbilicus metastasis (the sister Mary Joseph sign) (Figure 3). Her FNA showed many loose and pleomorphic cells with optically empty cytoplasm and nuclei located in the periphery. Finally,

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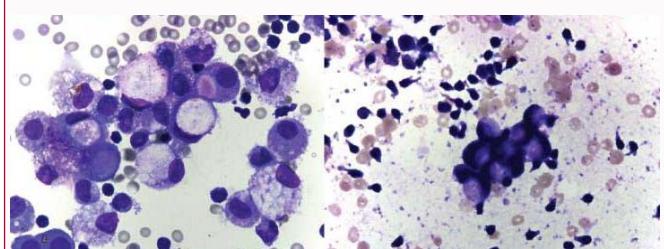
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**Figure 1:** Clinical findings: nodule in the umbilicus and cytological findings: hemorrhage and glandular structures, compatible with endometriosis.



**Figure 3:** Seal ring cells, extracted from the umbilicus nodule (Sister Mary Joseph sign).



**Figure 2:** Correlation: tomographic, clinical, cytological and histological findings of endometriosis in the umbilicus.

the fifth patient is a 56-year-old woman with ascites and a history of ovarian cystadenocarcinoma, with a navel injury. Her cytology showed pleomorphic and hyperchromatic cells arranged in papillary architecture.

## Discussion

The use of FNA is controversial. Some authors assert that this technique increases the risk of producing new endometriotic implants in the puncture site and the risk of viscera injury (a differential diagnosis of endometrioma is incisional hernia) [11-12]. However, others defend this technique arguing that it is an accurate method to make the diagnosis before the surgery, so it is possible to avoid errors in the approach of the abdominal wall endometriosis scars and helps to plan the best treatment. The use of this technique provides a pathological diagnosis before surgery in cases of diagnostic uncertainty regarding the origin of a mass [13-14]. Malignant change of scar endometriosis is rare. Only 21.3% of cases of malignant transformation of endometriosis occur at extragonadal pelvic sites and 4% in laparotomy scars [15-16].

Therapeutically, wide excision is the treatment of choice in such cases. To sum up, FNA is a safe and effective tool for identification of endometriosis and can obviate the need for diagnostic surgical procedures. Moreover, it can save the patient from undergoing radical treatment. Clinical history and careful interpretation of cytopathological features are necessary for developing an index of suspicion for correct identification of endometriosis over an adenocarcinoma on FNA [17].

In the case of the fourth and fifth patients, the cytology showed seal ring cells in papillary structures that in correlation with the clinical inspection (Figure 3), was an injury named as: Sister Mary

Joseph Nodule; is a form of metastasis to the umbilical region where the majority of cases are metastatic adenocarcinoma malignancies [17,18]. These account for 83% of all malignant tumors in the umbilical region [19]. Cutaneous metastases occur in between 1% and 9% of cases of malignancies, with around 10% affecting the umbilical region [20]. Sister Mary Joseph's Nodule suggests widespread internal neoplasia, usually of the abdominal cavity. The most common primary sites are the gastrointestinal tract (52%) or are gynecological (28%) [21]. In around 15% to 29% of cases the primary site is unknown [22]. Differential diagnoses include umbilical hernia, cutaneous endometriosis, pyogenic granuloma, melanocytic nevus, keloid, melanoma, squamous cell carcinoma and basal cell carcinoma [23-24]. The name of this sign is in honor of Superintendent Nurse at St. Mary's Hospital in Rochester; found that patients with abdominal and pelvic malignant neoplasm occasionally have an umbilical nodule indicating umbilical metastasis [24-26].

In conclusion, it is felt that with the increasing use of FNA of palpable and deep seated lesions, it may not be uncommon in cytologic practice to encounter cases of endometriosis and FNA can be a useful, noninvasive and diagnostic method to render such diagnoses. Furthermore, the study of cell blocks on cytology samples as done in this study is worthwhile in view of the histologic picture that it may provide in a number of cases for a more specific diagnosis. We also feel that a diagnosis of endometriosis on an FNAC sample is possible because of the typical findings as we have described, along with the clinical presentation in the patients. Also, such a diagnosis can obviate the need for an invasive surgical procedure.

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## Statement of Ethics

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975. Subjects (or their parents or guardians) have given their written informed consent for this case report.

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## Authors Contribution

Alejandro Velez and Sara Gil conceived of the presented idea, Miguel Roldán, Juan Camilo Pérez and Juliana Restrepo developed

the theory and encouraged to investigate in the literature. All authors discussed the results and contributed to the final manuscript.

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