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VAGINAL VAULT SUTURE GRANULOMA DETECTED ON POST-HYSTERECTOMY PAP SMEAR: A RARE CYTOLOGIC PITFALL AND CLINICOPATHOLOGICAL CORRELATION

Pathology

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ABSTRACT

Suture granuloma is a foreign body reaction to retained or fragmented suture material and is an uncommon finding in post-hysterectomy vaginal vault smears. A 41-year-old woman presented with lower abdominal pain and pruritus three months after total hysterectomy with bilateral salpingectomy. Examination showed mild inflammatory changes at the vaginal vault. A conventional Pap smear demonstrated abundant refractile linear and filamentous suture-like material associated with a prominent foreign body giant cell reaction, granulomatous inflammation, and a neutrophil-rich background. No epithelial dysplasia or malignant cells were identified. Polarized light microscopy demonstrated birefringent braided fragments compatible with polyglactin 910 (Vicryl). Review of the prior hysterectomy specimen showed low-grade squamous intraepithelial lesion/cervical intraepithelial neoplasia grade 1 in the cervix, secretory endometrium, superficial polypoid adenomyoma and leiomyomas in the myometrium, and unremarkable bilateral fallopian tubes. The cytologic findings were interpreted as a suture granuloma with associated inflammation. Recognition of suture material and the accompanying foreign body reaction is important to avoid misinterpretation as infection or recurrent/residual neoplasia and to prevent unnecessary investigations. Clinicopathologic correlation and, when required, polarized light microscopy can facilitate accurate diagnosis.

KEYWORDS

Giant Cells, Granuloma, Papanicolaou Test, Sutures.

INTRODUCTION

Foreign body reactions and granulation tissue may occur at the vaginal vault after hysterectomy. However, direct sampling of suture material with a florid foreign body giant cell reaction on a post-hysterectomy Pap smear is uncommon and may create a diagnostic pitfall. The cytologic appearance can mimic infectious granulomatous inflammation or, in patients with a previous cervical lesion, residual or recurrent neoplasia. We report a case of a vaginal vault suture granuloma identified on cytology, with confirmation by polarized light microscopy and correlation with the surgical history and prior histopathology. [1,2,3,4,5,6]

CASE REPORT

A 41-year-old woman presented with lower abdominal pain and pruritus three months after total hysterectomy with bilateral salpingectomy for benign uterine disease. Vicryl (polyglactin 910), an absorbable braided suture, had been used during the index surgery. Gynecological examination showed mild inflammatory changes and erythema at the vaginal vault without a discrete drainable collection. A conventional Pap smear was obtained from the vault.

The smear was satisfactory for evaluation and showed predominantly superficial and intermediate squamous cells with reactive changes. Numerous refractile linear and filamentous fragments of suture-like material were present, associated with prominent multinucleated foreign body giant cells, histiocytes, occasional granulomatous foci, and a neutrophil-rich inflammatory background. No overt epithelial dysplasia, malignant cells, or specific organisms were identified. On polarized light microscopy, the suture fragments showed birefringence and a braided morphology compatible with polyglactin 910 (Vicryl).

Review of the prior hysterectomy specimen showed low-grade squamous intraepithelial lesion/cervical intraepithelial neoplasia grade 1 in the cervix, secretory-phase endometrium, superficial polypoid adenomyoma and multiple leiomyomas in the myometrium, and unremarkable bilateral fallopian tubes. In view of the clinical history and characteristic cytologic findings, a diagnosis of vaginal vault suture granuloma with associated inflammation was made. Conservative management with local care and clinical follow-up was advised. Targeted biopsy or excision was reserved for persistent mass, bleeding, or diagnostic uncertainty. Written informed consent for publication of clinical details and images was obtained from the patient.

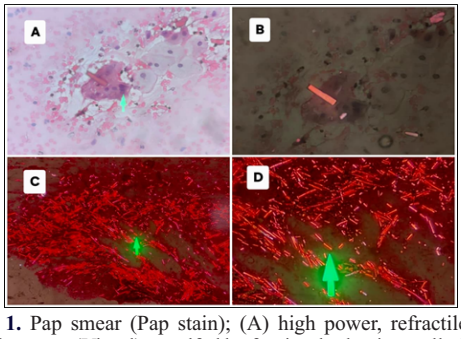


Figure 1. Pap smear (Pap stain); (A) high power, refractile linear suture fragment (Vicryl) engulfed by foreign-body giant cells (arrow), (B) under polarized light, birefringent suture fragment highlighted within foreign body giant cell, (C) under polarized light wide field, numerous birefringent braided fragments consistent with Vicryl fibers, (D) under polarized light close-up, clustered birefringent fragments (arrow)

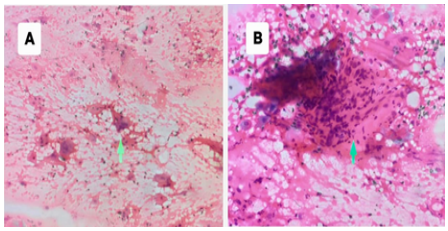


Figure 2. Pap smear (Pap stain); (A) lower power: neutrophil-rich background with histiocytes/Foreign Body Giant Cells (arrow). (B) higher power: granulomatous focus.

DISCUSSION

Suture granuloma represents a foreign body giant cell response to exogenous suture material. Although postoperative foreign body reactions may occur at surgical sites, their recognition in a vaginal vault Pap smear is important because the cytologic appearance may be

mistaken for infectious granulomatous inflammation or neoplasia. In the present case, the combination of abundant linear refractile material, multinucleated foreign body giant cells, granulomatous inflammation, and the recent history of hysterectomy strongly supported a suture-related foreign body reaction. [1,4,5,6,7]

The differential diagnosis includes infectious granulomatous inflammation, including mycobacterial, fungal or actinomycotic infection; malakoplakia; nonspecific granulation tissue; radiation-related atypia; and residual or recurrent intraepithelial neoplasia. The absence of specific organisms, necrosis, Michaelis–Gutmann bodies, significant atypical epithelial cells, and radiation-associated epithelial changes helped exclude these possibilities in this case. Polarized light microscopy is a useful, simple ancillary method for demonstrating birefringent suture fragments and can support the diagnosis when the material is difficult to recognize on routine cytology. [4,5,6,8] The absence of a transformation zone or endocervical component is expected in a post-hysterectomy vaginal vault smear and should not, by itself, be interpreted as a sampling failure. Awareness of the surgical history and the expected postoperative changes is essential for appropriate interpretation. Recognition of a suture granuloma can prevent unnecessary oncologic work-up and invasive procedures. Persistent symptoms, a mass, bleeding, or unresolved diagnostic uncertainty should prompt clinical reassessment and when indicated, targeted biopsy. [2,3,9,10]

CONCLUSION

This case highlights an uncommon but clinically relevant cytologic pitfall. Careful examination of refractile foreign material, recognition of the characteristic foreign body giant cell response and clinicopathologic correlation allow accurate diagnosis of vaginal vault suture granuloma.

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