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Case Report

Pathology Section

Russell Body Cervicitis Presenting with Contact Bleeding: A Case Report

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ABSTRACT

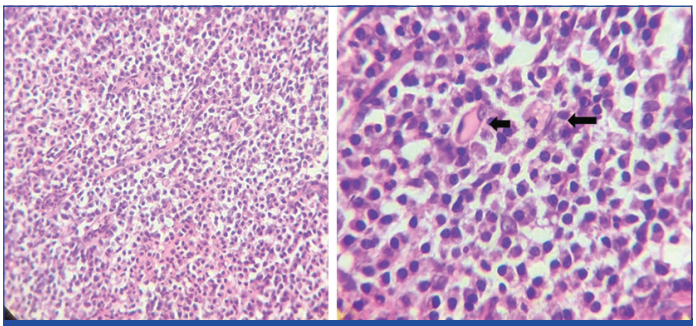
Russell bodies are large (2-3 µm diameter) homogenous hyaline immunoglobulin inclusions, often single, seen in plasma cells displacing the nucleus to a side. When a plasma cell contains multiple vacuoles or inclusions, they are called mott cells. Russell body cervicitis is a rare inflammatory pathology in cervix, characterised by marked infiltration of plasma cells and mott cells. Very little is known about the aetiology, pathogenesis and natural course of this condition. Hereby, authors report an unusual case of a 41-year-old female, who presented with complaints of postcoital bleeding for two weeks. On clinical examination, a small cervical polyp was found and biopsied. Microscopy showed an endocervical polyp with stroma showing dense intense infiltration with plasma cells and multiple mott cells with russell bodies. The cells showed positive immunoreactivity for CD138, kappa and lambda. The histological changes in chronic cervicitis are non specific with a mixed inflammation composed of lymphocytes, plasma cells, histiocytes and stromal fibrosis. However a presentation of sheet like plasmacytic inflammatory infiltrate in the cervix accompanied by numerous russell bodies is a rare histologic finding with very few published literature. A similar histological pattern has been recorded in other sites, including russell body gastritis, a recently recognised pseudotumoral lesion of stomach. Authors have presented this case to contribute to the few articles of russell body cervicitis in literature.

Keywords: Chronic cervicitis, Mott cells, Plasmacytoma, Plasma cells, Positive immunoreactivity

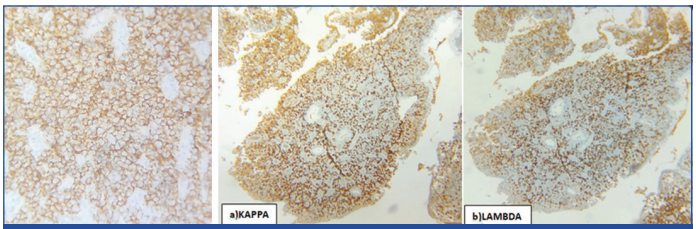
CASE REPORT

A 41-year-old female patient presented with complaints of postcoital bleeding for two weeks. She was a known hypertensive with history of one episode of cerebrovascular accident one year back. She was para 3 with three full term normal deliveries. Last child birth was six years ago with postpartum sterilisation. Her menstrual cycles were regular. On per speculum examination, a small polyp measuring 1.5×1×0.5 cm was seen protruding through the cervix. A benign endocervical polyp was diagnosed clinically. Polypectomy was done and was sent for histopathological examination.

Microscopy (heamatoxylin and eosin stain) showed an endocervival polyp with cervical stroma showing intense infiltration of plasma cells in sheets [Table/Fig-1]. Many mott cells, binucleated cells and plasma cells with russell bodies noted [Table/Fig-2]. The main differential diagnosis considered for this unusual histology was russell body cervicitis and plasmacytoma. Immunohistochemically the cells were positive for CD138 (plasma cell marker) [Table/Fig-3]; both kappa and lambda were positive (polyclonal pattern) [Table/Fig-4]. A final diagnosis of russell body cervicitis was given. Patient is symptomatically better with no evidence of recurrence for two months and is on follow-up.



[Table/Fig-1]: Heamatoxylin and Eosin stain (H&E) (400X), diffuse sheets of plasma cell infiltration with multiple russell bodies. **[Table/Fig-2]:** H&E (1000X), russell body and mott cell within the plasma cell infiltrate. (Images from left to right)



[Table/Fig-3]: Immunohistochemistry (400X), CD138 positivity in plasma cells. **[Table/Fig-4]:** Positive Immunohistochemistry staining for a) kappa and b) lambda (400X). (Images from left to right)

DISCUSSION

The normal cervix contains a population of lymphocytes and plasma cells as a part of local mucosal immunity. Chronic cervicitis is a common condition for adult females at least histologically. Non infectious cervicitis can be due to mechanical or chemical irritation. Russell body cervicitis was first described by Stewart and Leake in 2006 [1]. It is a very rare entity. This case report aimed to report the sixth case of russell body cervicitis with a review of literature. Munsick and Janoveski first reported russell body cells in endocervical polyp in 1963 [2].

These inclusions occur as a part of increased immunoglobulin secretion within the rough endoplasmic reticulum. These cells are seen in conditions of immune stimulation, both reactive and neoplastic (plasmacytoma and B cell lymphoma). Russell body cells have been reported to accompany *H.pylori* infection in gastric mucosa (russell body gastritis), in inflammed dental pulp, barret oesophagus, dermatitis, duodenal ulcer, gingivitis. In Russell body gastritis, over stimulation of plasma cells by mucosal pathogens specifically chronic *H.pylori* infection leads to increased immunoglobulin synthesis and thereby russell body formation in plasma cells [3]. After *H.pylori* eradication, mott cells and russell bodies are disappearing in the gastric mucosa further proving the role of the infectious agent. But involvement of any infectious agent in russell body cervicitis is not yet elucidated. Bacteria, seminal fluid, ingredients of douche and contraceptive substances are all suspected stimulants for plasma cell activation and infiltration in to the cervix. But the exact cause and the aetiopathogenesis is not clear yet.

A study by Johansen A and Sikjär B on "the diagnostic significance of russell bodies in endoscopic gastric biopsies" found a higher density of plasma cells with russell body in the peritumoural mucosa in patients with carcinoma stomach, and suggested a role of these cells in development of adenocarcinoma [4]. The most important differential diagnosis considered in the present case was a plasmacytoma. Immunohistochemistry is critical in this differentiation. A polyclonality with kappa and lambda immunostain rules out plasmacytoma and lymphoplasmacytic lymphoma. Extramedullary cervical plasmacytomas are also rare lesions with only 12 cases reported to date, among which three of them were diagnosed without the support of immunohistochemistry evidence [5]. The most common presentation in these cases was contact bleeding and pelvic pain. Most of them were treated with hysterectomy with or without adjuvant radiotherapy. Malakoplakia of cervix is another differential to be considered [6].

When there is a diffuse infiltration of russell body containing plasma cells, a diagnostic confusion with signet ring cells of carcinoma can occur. A negative immunostaining with cytokeratin can be used to rule this out. Russell body cervicitis has been published five times since 2006 [Table/Fig-5] [1,7-10]. The average age of presentation was 37.6 years (range; 29-44 years), three of the cases showed endocervical polyp on clinical examination. Histologically all cases showed diffuse plasma cell infiltration with intracytoplasmic russell bodies. One case showed an association with Human Papillomavirus (HPV).

CONCLUSION(S)

Authors report this case for its rarity. It is important to be aware of this unusual pattern of inflammation in cervix. Immunohistochemistry plays a critical role in differentiating this inflammatory process from a neoplastic pathology. Follow-up studies and further research is needed to investigate the role of an infectious agent in the aetiology, and to ascertain if this inflammatory process is a risk factor for progression into carcinoma or plasmacytoma.

Author name and year of publication	Age of patient (in years)	Clinical presentation	Follow-up
Stewart CJR and Leake R [1] 2006	35	Low-grade Squamous Intraepithelial Lesion (LSIL) on routine cervical smear, biopsy showed russell body cervicitis with no evidence of Cervical Intraepithelial Neoplasia 1 (CIN 1)	Follow-up colposcopy and smear after six months was normal
Salmo E and Farroha M [7] 2007	29	Cervical polyp with contact bleeding , history of miscarriage before three weeks	Asymptomatic for one year
Foda AARM et al., [8] 2014	35	Cervical polyp with contact bleeding	Asymptomatic for six months
Altun E et al., [9] 2017	40	Colposcopy and biopsy following positive Human papillomavirus DNA screening test, suspicious looking cervix	Asymptomatic for one year
Joseph D et al., [10] 2020	44	Recurrent endocervical polyp (4 times)	Asymptomatic for 14 months

[Table/Fig-5]: Survey of previous published cases of russell body cervicitis [1,7-10].

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