

Case Report

## Russell body gastritis

J. Qiao<sup>1</sup>, E. Dudrey<sup>2</sup>, S. Gilani<sup>1</sup>

<sup>1</sup> Department of Pathology, <sup>2</sup> Department of Pathology and Medical Education,  
Texas Tech University Health Science Center/Paul L. Foster School of Medicine, El Paso, Texas, U.S.A.

### Summary

Russell body gastritis is caused by an accumulation of plasma cells within the gastric mucosa. These plasma cells are characterized by eosinophilic cytoplasmic inclusions of immunoglobulin which are called “Russell bodies.” We report a case of Russell body gastritis in a 28-year-old male who presented with abdominal pain and rectal bleeding. Endoscopy showed erosions with edema and vascular congestion in the gastric body and antrum. The biopsy showed chronic gastritis with plasma cell infiltration of the lamina propria. Many plasma cells contained cytoplasmic Russell bodies which stained positive for CD138, CD79a, Kappa and lambda light chains. The Russell bodies were negative for pancytokeratin, excluding signet ring cell carcinoma. Russell body gastritis is an uncommon, benign reactive condition.

### Key words

Gastric biopsy • Gastritis • Plasma cells • Russell body gastritis

Russell body gastritis is characterized by the presence of plasma cells with eosinophilic cytoplasmic inclusions of immunoglobulin in the gastric lamina propria. The process is thought to be a benign reactive process. Initial case reports suggest the association of this entity with infections, particularly *Helicobacter pylori* infections<sup>1,2</sup>.

We report a case of a 28-year-old male with a history of human immunodeficiency virus (HIV) who presented with abdominal pain, fatigue and a one week history of rectal bleeding. Complete blood count showed pancytopenia. Computerized tomography (CT) scan showed moderate splenomegaly and mild hepatomegaly. Endoscopy revealed erosions, erythematous mucosa, and vascular congestion in the gastric body and antrum.

Microscopic examination showed an accumulation of plasma cells with cytoplasmic Russell bodies in the lamina propria. The plasma cells had eosinophilic cytoplasm and were present in a background of chronic inactive gastritis (Fig. 1). Immunohistochemical stains were positive for CD138, CD79a and they show polyclonal expression of kappa and lambda light chains (Fig. 2). The Russell bodies were negative for pan-

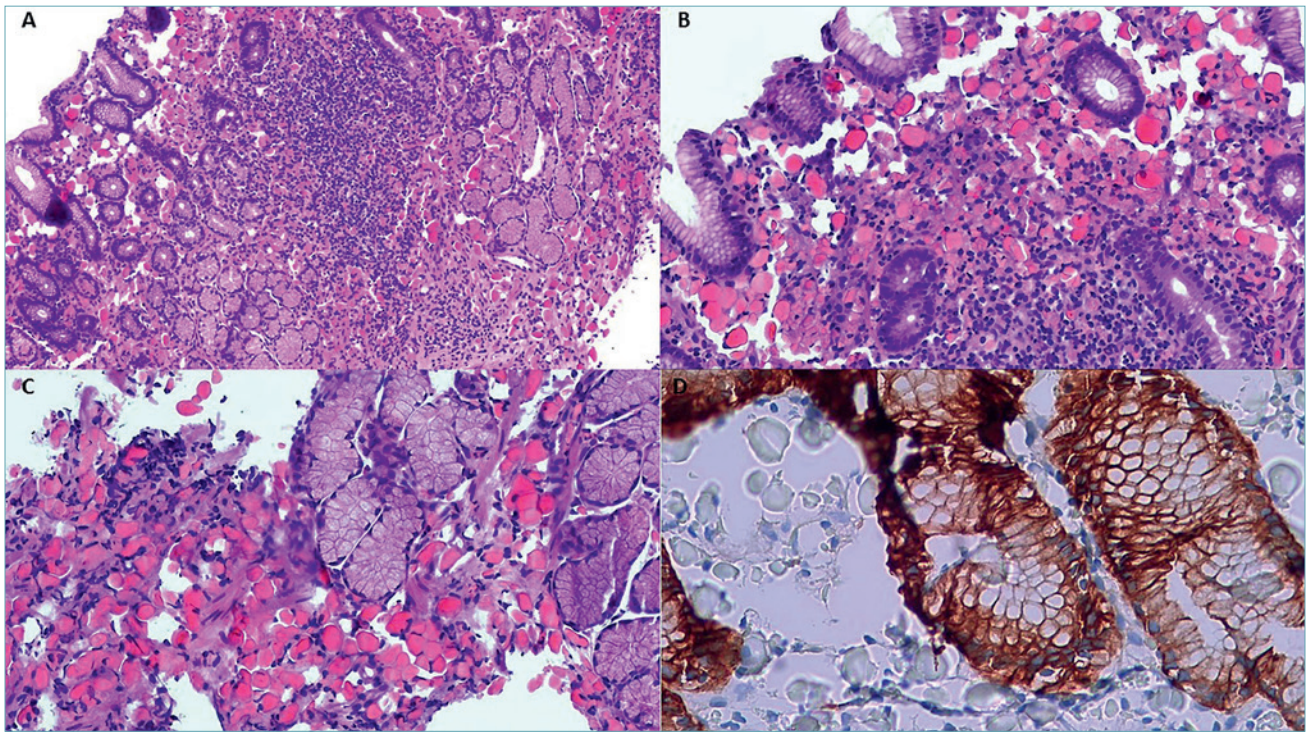
cytokeratin, excluding a signet ring cell carcinoma. Giemsa stain is negative for *H. pylori* organisms.

There are occasional case reports of Russell body gastritis in the literature<sup>1-14</sup> and some describe an association with *H. pylori* infection<sup>2,5</sup>. Theories regarding the cause include chronic gastritis leading to either under-secretion of immunoglobulin by plasma cells or over-production of plasma cells with increased formation of Russell bodies<sup>5,6</sup>. Some cases have been described in *H. pylori* negative patients<sup>9,13</sup>, and occasional cases have been reported in HIV positive patients<sup>4,7,10</sup>. Shinozaki et al. reported two cases of Epstein-Barr virus positive stomach carcinoma with associated accumulation of Mott cells<sup>8</sup>. Altindag SD et al. studied 11 cases of Russell body gastritis and observed one case of concomitant carcinoma and plasma cell neoplasm<sup>14</sup>. The presenting symptoms were variable and mostly non-specific<sup>14</sup>. Endoscopic examination can show features of gastritis and erythematous mucosal changes or present as nodular or raised lesion<sup>12,15</sup>. Follow-up is suggested due to occasional reported cases with associated concurrent neoplastic processes<sup>14,15</sup>. The differential diagnosis includes plasma cell neoplasms, other hematologic neoplasms, histiocytic pro-

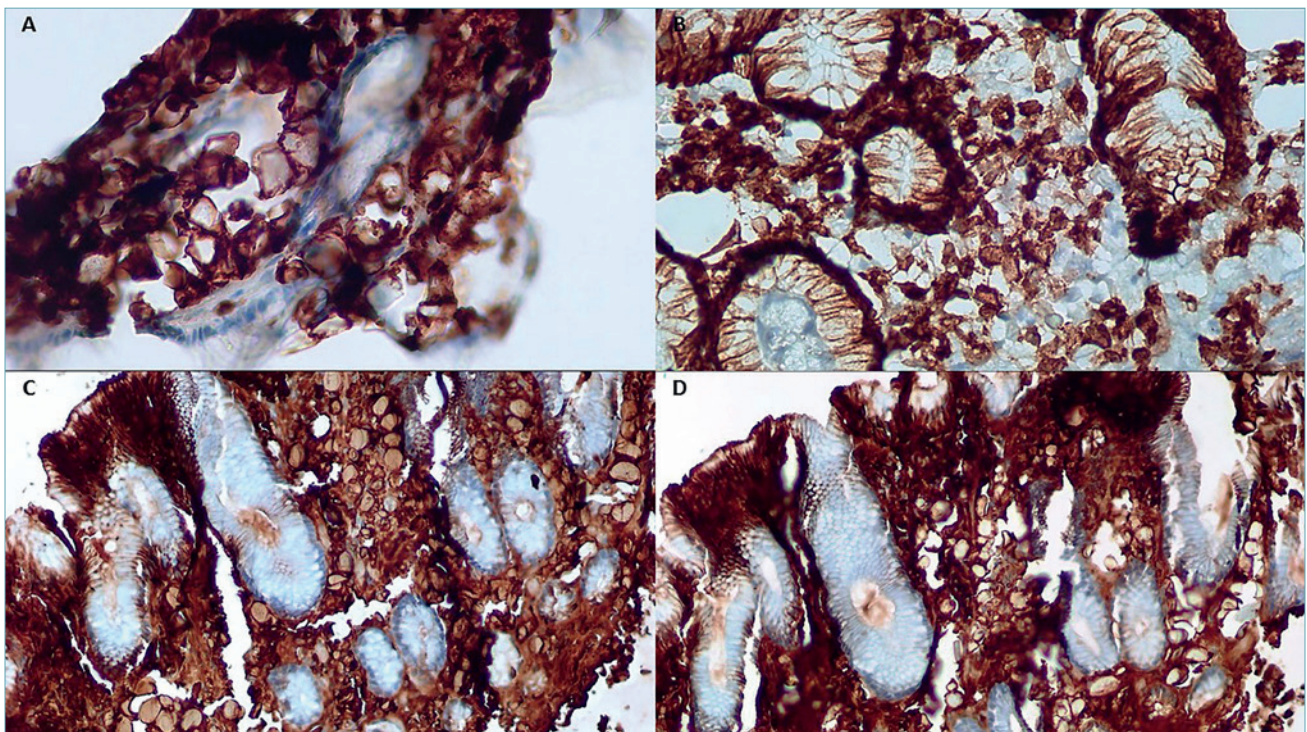
**How to cite this article:** Qiao J, Dudrey E, Gilani S. *Russell body gastritis*. Pathologica 2019;111:76-8. <https://doi.org/10.32074/1591-951X-17-19>.

**Correspondence:** Syed Gilani, Department of Pathology, Texas Tech University Health Science Center/Paul L. Foster School of Medicine, El Paso, Texas - E-mail: magilani@hotmail.com





**Fig. 1.** Gastric mucosa with chronic inflammation and presence of plasma cells with intracytoplasmic eosinophilic globules. (A): 100X, (B & C): 200X and (D): Pancytokeratin immunohistochemical stain which is negative in the globules (400x).



**Fig. 2.** These eosinophilic globules are positive for CD79a and CD138 (A & B, 400X, respectively). Lambda and kappa immunohistochemical stains are also positive (C & D, 200X, respectively).



cesses, and signet ring cell adenocarcinoma. Immunohistochemical stains are helpful in excluding the above entities as diagnostic possibilities. Wolkersdörfer et al. described concomitant presence of monoclonal gammopathy of undetermined significance, *H. pylori* infection and Russell body gastritis<sup>5</sup>. Plasma cell neoplasms are monoclonal and they express either kappa or lambda light chains. Our case shows expression of both kappa and lambda light chains which is an expected finding in Russell body gastritis unassociated with a plasma cell neoplasm. There have been case reports of Russell body gastritis with monoclonal expression of kappa or lambda light chain<sup>11 12</sup>. Histiocytic infiltrates may have a similar histologic appearance with eosinophilic cytoplasm and immunohistochemical stains for CD68 and CD138, a plasma cell marker can aid in the differential diagnosis. Signet ring cell adenocarcinoma may have a similar appearance, with the malignant cells often having nuclear atypia and cytoplasmic mucin secretion. Immunohistochemical stains for keratin are positive in signet ring cell adenocarcinoma and negative in Russell body gastritis.

We report a case of Russell body gastritis in an *H. pylori* negative patient who is HIV positive and on HAART (highly active antiretroviral therapy) therapy. Russell body gastritis is considered to be a reactive process.

#### CONFLICT OF INTEREST STATEMENT

None declared.

#### References

- <sup>1</sup> Tazawa K, Tsutsumi Y. Localized accumulation of Russell body-containing plasma cells in gastric mucosa with *Helicobacter pylori* infection: 'Russell body gastritis'. *Pathol Int* 1998;48:242-4.
- <sup>2</sup> Ensari A, Savas B, Okcu Heper A, et al. An unusual presentation of *Helicobacter pylori* infection: so-called "Russell body gastritis". *Virchows Arch* 2005;446:463-6.
- <sup>3</sup> Erbersdobler A, Petri S, Lock G. Russell body gastritis: an unusual, tumor-like lesion of the gastric mucosa. *Arch Pathol Lab Med* 2004;128:915-7.
- <sup>4</sup> Drut R, Olenchuk AB. Images in pathology. Russell body gastritis in an HIV-positive patient. *Int J Surg Pathol* 2006;14:141-2.
- <sup>5</sup> Wolkersdörfer GW, Haase M, Morgner A, et al. Monoclonal gammopathy of undetermined significance and Russell body formation in *Helicobacter pylori* gastritis. *Helicobacter* 2006;11:506-10.
- <sup>6</sup> Paik S, Kim SH, Kim JH, et al. Russell body gastritis associated with *Helicobacter pylori* infection: a case report. *J Clin Pathol* 2006;59:1316-9.
- <sup>7</sup> Licci S, Sette P, Del Nonno F, et al. Russell body gastritis associated with *Helicobacter pylori* infection in an HIV-positive patient: case report and review of the literature. *Z Gastroenterol* 2009;47:357-60.
- <sup>8</sup> Shinozaki A, Ushiku T, Fukayama M. Prominent Mott cell proliferation in Epstein-Barr virus-associated gastric carcinoma. *Hum Pathol* 2010;41:134-8.
- <sup>9</sup> Del Gobbo A, Elli L, Braidotti P, et al. *Helicobacter pylori*-negative Russell body gastritis: case report. *World J Gastroenterol* 2011;17:1234-6.
- <sup>10</sup> Bhalla A, Mosteanu D, Gorelick S, et al. Russell body gastritis in an HIV positive patient: case report and review of literature. *Conn Med* 2012;76:261-5.
- <sup>11</sup> Araki D, Sudo Y, Imamura Y, et al. Russell body gastritis showing IgM kappa-type monoclonality. *Pathol Int* 2013;63:565-7.
- <sup>12</sup> Coyne JD, Azadeh B. Russell body gastritis: a case report. *Int J Surg Pathol* 2012;20:69-70.
- <sup>13</sup> Klair JS, Girotra M, Kaur A, et al. *Helicobacter pylori*-negative Russell body gastritis: does the diagnosis call for screening for plasmacytic malignancies, especially multiple myeloma? *BMJ Case Rep* 2014;2014. doi: 10.1136/bcr-2013-202672.
- <sup>14</sup> Altindag SD, Cakir E, Ekinci N, Avci A, Dilek FH. Analysis of clinical and histopathological findings in Russell body gastritis and duodenitis. *Ann Diagn Pathol* 2019;40:66-71.
- <sup>15</sup> Antunes AG, Cadillá J, Velasco F. Russell body gastritis in an *Hp*-negative patient. *BMJ Case Rep* 2016;2016. doi: 10.1136/bcr-2016-216717.

Received: June 17, 2019 - Accepted: June 1, 2019