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Necrotizing granulomatous vasculitis of the gallbladder. A case report

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Abstract

Granulomatous inflammation is a tissue reaction caused by various factors. Granulomatous vasculitis is a subgroup of systemic necrotizing vasculitis. Necrotizing granulomatous vasculitis is a rare inflammatory condition consisting of granulomas restricted to blood vessels. Although it is quite rare in the gallbladder, numerous necrotizing granulomas were found in the gallbladder in this particular case. Many acute and chronic inflammatory cells, including eosinophils, were seen within the fibrinoid necrosis in the vascular structures in the central area of these granulomas.

Keywords: gallbladder, vasculitis, granuloma, necrotizing granulomatous vasculitis

Introduction

Prominent gallbladder disorders include cholelithiasis-associated disease, acute acalculous cholecystitis, functional disorder, polyps, hydrops, porcelain gallbladder, and cancer [1]. Except for acute acalculous cholecystitis and polyps, disorders tend to predominate in females [2-6].

Granulomatous inflammation is a tissue reaction caused by infectious, autoimmune, toxic, allergic, drug, and neoplastic conditions. It includes necrotizing granulomas, non-necrotizing granulomas, suppurative granulomas, diffuse granulomatous inflammation, and foreign-body giant cell reaction [7].

Granulomatous vasculitis is a subgroup of systemic necrotizing vasculitis. Its main feature is the presence of granulomatous inflammation [8]. Necrotizing granulomatous vasculitis, an inflammation restricted to blood vessels, is a rare histopathological finding, particularly in the gallbladder [9-11].

Gallbladder vasculitis was reported as part of systemic vasculitis and focal single-organ vasculitis. It most often consists of a non-granulomatous necrotizing vasculitis affecting medium-sized vessels. Granulomatous necrotizing vasculitis is much less common than non-granulomatous necrotizing vasculitis [9]. Systemic vasculitis involving abdominal structures has a poor prognosis [9,10]. Gastrointestinal involvement is usually associated with a worse prognosis than other forms of systemic vasculitis [12,13]. Single-organ vasculitis is reported to occur in several locations within the abdominal cavity. These organs are the esophagus, stomach, omentum, small and large intestine, appendix, pancreas, and gallbladder [9].

Gallbladder vasculitis was rare in the cholecystectomy findings; it is seen as a single-organ vasculitis or as a part of systemic vasculitis [9,14].

This study presents a case of a 66-year-old female with a necrotizing granulomatous vasculitis of gallbladder.

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Informed Consent
The authors stated that the written consent was obtained from the patient presented with images in the study.

Conflict of Interest
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Case presentation

A 66-year-old female patient was admitted to our hospital with a complaint of pain in the right upper quadrant of the abdomen, which she had been experiencing for six months. After a detailed clinical examination, abdominal ultrasonography revealed an increased thickness of the gallbladder wall as well as gallstones.

A chest X-ray was normal. In the biochemical examination, blood values were gamma-glutamyl transferase (GGT): 64 U/L (normal value range 0-38), alkaline phosphatase (AP): 233 U/L (normal value range 30-120), C reactive protein (CRP): 65.7 mg/L (normal value range 0-5) and amylase: 110 U/L (normal value range 28-100). GGT, AP, and CRP were significantly elevated, and amylase was slightly elevated. The patient was diagnosed with active chronic cholecystitis and underwent cholecystectomy. The cholecystectomy material was sent to our pathology laboratory. The gallbladder measured 8x2.5x2 cm. The wall thickness in the cross section was 0.2-0.3 cm. Its mucosa was green and had lost its velvety texture. There were eight stones in the lumen, the largest of which was 1 cm in diameter; the smallest was 0.5 cm in diameter, dirty yellow in color and friable. Paraffin blocks were prepared from tissue samples taken from this material. Sections measuring 0.4 micron thick, which were prepared from paraffin blocks were deparaffinized. They were examined using Hematoxylin and Eosin histochemical stain. In the routine microscopic examination of the cholecystectomy specimen, there was an occasional occurrence of erosion in the mucosa. Granulomas were located in the muscularis propria facing serosa (Figure 1).

In the sac wall, there were numerous eosinophil leukocytes as well as chronic and acute inflammatory cells within fibrinoid necrosis in the central area of the medium-sized vascular structures (Figure 2). Areas of fibrinoid necrosis had a marked eosinophilic appearance (Figure 3).

No multinucleated giant cells were observed in these. An occasional deletion was seen in the muscularis propria where the granulomas were located. Histopathological findings included necrotizing granulomatous vasculitis.

The patient was informed and consent was obtained for the publication of this case report.

Figure 1: Two necrotizing granulomatous vasculitis structures in the gallbladder. (HEx40)

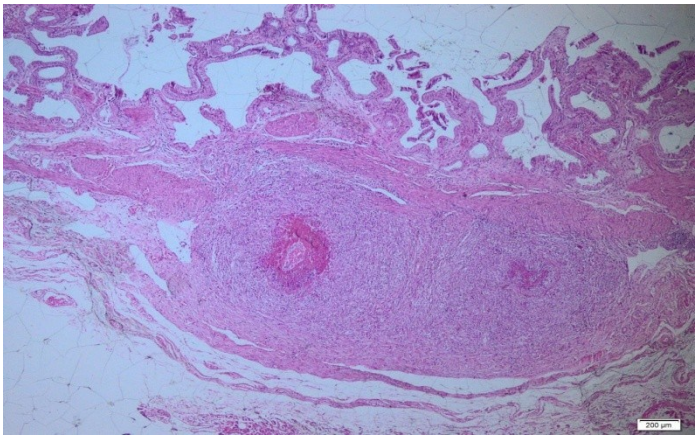


Figure 2: Chronic and acute inflammatory cells in the stroma and granuloma structure with fibrinoid necrosis in the central area. (HEx100)

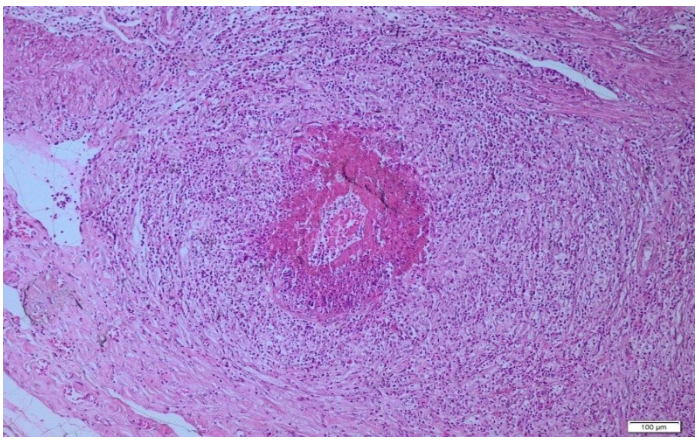
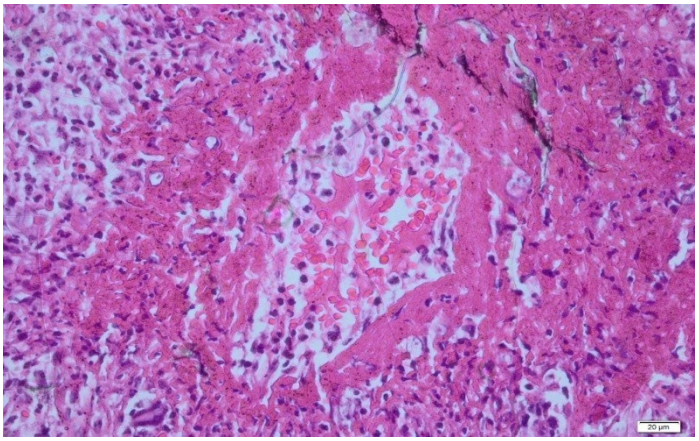


Figure 3: Area of fibrinoid necrosis with a marked eosinophilic appearance involving the blood vessel wall (HEx400)



Discussion

Gallbladder vasculitis is only found in 0.04 - 0.29% of the cholecystectomies performed, based on various studies [9,14]. It is seen as a single-organ vasculitis or a part of systemic vasculitis. It is an uncommon site for both single-organ vasculitis and as part of systemic vasculitis [10]. It is observed in fewer than 2% of patients with other systemic vasculitis [14]. Single-organ gallbladder vasculitis is usually associated with local symptoms, whereas systemic gallbladder vasculitis is associated with systemic symptoms. In single-organ gallbladder vasculitis, surgery is adequate for treatment, whereas systemic gallbladder vasculitis is associated with high mortality and requires systemic anti-inflammatory or immunosuppressive therapy [9].

There were no differences in age or gender among patients with single-organ vasculitis or systemic vasculitis of the gallbladder. Calculous cholecystitis was more frequent in patients with single-organ gallbladder vasculitis, whereas acalculous cholecystitis occurred more often in patients with systemic gallbladder vasculitis [9].

It should be considered that, although rare, necrotizing granulomatous vasculitis may occur incidentally in cholecystectomy material. When vasculitis is diagnosed, the distinction between single-organ vasculitis and systemic vasculitis should be made with clinical correlation. It should be thoroughly investigated whether gallbladder vasculitis is a single-organ vasculitis or part of systemic vasculitis, because the prognosis and treatment differ significantly. While cholecystectomy is sufficient in the treatment of single-organ gallbladder vasculitis, treatment

of systemic gallbladder vasculitis is intensive and requires systemic anti-inflammatory or immunosuppressive therapy [9].

In this case, there was no clinical, laboratory, or radiological evidence of systemic vasculitis or other pathological findings. The vasculitis in the gallbladder was characterized as a single-organ vasculitis; the patient had gallstones. The potential trigger of this isolated gallbladder vasculitis was thought to be primarily inflammation accompanied by gallstones. Cholecystectomy was performed in this case, and since there was no other pathology, surgical treatment was deemed sufficient. During the one-year follow-up period, no other signs of systemic vasculitis were observed in the patient. There was no need for any systemic anti-inflammatory or immunosuppressive therapy within one year after cholecystectomy.

Conclusion

Since necrotizing granulomatous vasculitis is a rare pathology of the gallbladder, considering it in the differential diagnosis will increase diagnostic efficiency and contribute to correct treatment.

References

1. Lam R, Zakko A, Petrov JC, Kumar P, Duffy AJ, Muniraj T. Gallbladder Disorders: A Comprehensive Review. Dis Mon. 2021 Jul;67(7):101130. doi: 10.1016/j.disamonth.2021.101130.
2. Iyer SG, Ravishankar KD, Huang E, Masud K. Acute acalculous cholecystitis: challenging the myths. HPB (Oxford). 2007;9(2):131-4. doi: 10.1080/13651820701315307.
3. Mossaab G, Khlifa MB, Karim N, Moez B, Oussama J, Hajer N, et al. Acute acalculous cholecystitis in hospitalized patients in intensive care unit: study of 5 cases. Heliyon. 2022 Nov 11;8(11):e11524. doi: 10.1016/j.heliyon.2022.e11524. eCollection 2022 Nov.
4. Schirmer BD, Winters KL, Edlich RF. Cholelithiasis and cholecystitis. J Long Term Eff Med Implants. 2005;15(3):329-38. doi: 10.1615/jlongtermeffmedimplants.v15.i3.90.
5. Randi R, Franceschi S, La Vecchia C. Gallbladder cancer worldwide: geographical distribution and risk factors. Int J Cancer. 2006 Apr 1;118(7):1591-602. doi: 10.1002/ijc.21683.
6. Lin WR, Lin DY, Tai DI, Hsieh SY, Lin CY, Sheen IS, et al. Prevalence of and risk factors for gallbladder polyps detected by ultrasonography among healthy Chinese: analysis of 34 669 cases. J Gastroenterol Hepatol. 2008 Jun;23(6):965-9. doi: 10.1111/j.1440-1746.2007.05071.x.
7. Shah KK, Pritt BS, Alexander MP. Histopathologic review of granulomatous inflammation. J Clin Tuberc Other Mycobact Dis. 2017 Feb 10;7:1-12. doi: 10.1016/j.jctube.2017.02.001.
8. Marquez J, Flores D, Candia L, Espinoza LR. Granulomatous vasculitis. Curr Rheumatol Rep 2003 Apr;5:128-35. doi:10.1007/s11926-003-0040-6.
9. Hernandez-Rodriguez J, Tan CD, Rodriguez ER, Hoffman, GS. Single-organ Gallbladder Vasculitis. Characterization and Distinction From Systemic Vasculitis Involving the Gallbladder. An Analysis of 61 Patients. Medicine (Baltimore). 2014 Nov;93(24):405-13. doi: 10.1097/MD.0000000000000205.
10. Hernandez-Rodriguez J, Hoffman GS. Abdominal structures are frequently involved in systemic vasculitides. Updating single-organ vasculitis. Curr Opin Rheumatol. 2012;24:38-45.
11. Chen KT. Gallbladder vasculitis. J Clin Gastroenterol. 1989;11:537-40.
12. Sujobert P, Fardet L, Marie I, Duhaut P, Cohen P, Grange C, et al. Mesenteric ischemia in giant cell arteritis: 6 cases and a systematic review. J Rheumatol. 2007 Aug;34(8):1727-32. Epub 2007 Jul 1. PMID: 17611981.
13. Terrier B, Carrat F, Krastinova E, Marie I, Launay D, Lacraz A, et al. Prognostic factors of survival in patients with non-infectious mixed cryoglobulinaemia vasculitis: data from 242 cases included in the CryoVas survey. Ann Rheum Dis. 2013;72:374-80.
14. Pagnoux C, Mahr A, Cohen P, Guillevin L. Presentation and outcome of gastrointestinal involvement in systemic necrotizing vasculitides: analysis of 62 patients with polyarteritis nodosa, microscopic polyangiitis, Wegener granulomatosis, Churg-Strauss syndrome, or rheumatoid arthritis-associated vasculitis. Medicine (Baltimore). 2005;84:115-28.