CASE REPORT

Bali Medical Journal (*Bali MedJ*) 2022, Volume 11, Number 2: 523-526
P-ISSN.2089-1180, E-ISSN: 2302-2914

Vesico-Peritoneal Fistula As A Rare Cause Of Peritonitis In Guillain-Barre Syndrome: A Case Report

Eriawan Agung Nugroho[1], Dimas Susilo Waridiarto[2*], Nanda Daniswara[1], Sofyan Rais Addin[1], Dimas Sindhu Wibisono[1], Ardy Santosa[1]

[1]Urology Division, Department of Surgery, Dr. Kariadi General Hospital, Faculty of Medicine Universitas Diponegoro
[2]Surgery Resident Semarang Faculty of Medicine, Faculty of Medicine Universitas Diponegoro

*Corresponding to:
Dimas Susilo Waridiarto, Surgery Resident Semarang Faculty of Medicine, Faculty of Medicine Universitas Diponegoro, +6288801911712; dswaridiarto@gmail.com

Received: 2022-02-20
Accepted: 2022-05-28
Published: 2022-06-25

ABSTRACT

Introduction: Guillain-Barre syndrome is the most common and most severe acute paralytic neuropathy with any clinical features. Some patients present with the neurogenic bladder in which bladder dysfunction happens, resulting in urinary retention. The delayed diagnosis often leads to some complications, including bladder perforation. Vesico-peritoneal is lined by epithelial cells that communicate between the peritoneal cavity and the urinary bladder. In this location, can occur a fistula called vesico-peritoneal fistula. This type of fistula leads to peritonitis with high morbidity and mortality.

Case description: A 22- year- old female was admitted to a neurologist with lower extremities paralysis. The surgery department then consulted the patient for suspicion of generalized peritonitis. The patient had a history of taking medication for Guillain-Barre syndrome and complaint of abdominal pain, bloating, nausea, hematemesis, and hematuria. The abdominal radiograph showed pneumoperitoneum. The patient received antibiotics and underwent exploratory laparotomy. Exploratory laparotomy revealed vesico-peritoneal fistula. In this case, the defect was achieved by dissection of the fistulous tract and the primary closure of the bladder. Postoperative follow-up indicated no sign of complication.

Conclusion: Fistulation between the bladder and peritoneal in GBS could cost high morbidity and mortality. Dissection of the fistulous tract and primary closure of the bladder could overcome this condition without any concerning complications.

Keywords: Bladder perforation, fistula, Guillain-barre syndrome, peritonitis, vesico-peritoneal.
Cite This Article: Nugroho, E.A., Waridiarto, D.S., Daniswara, N., Addin, S.R., Wibisono, D.S., Santosa, A. 2022. Vesico-Peritoneal Fistula As A Rare Cause Of Peritonitis In Guillain-Barre Syndrome: A Case Report. *Bali Medical Journal* 11(2): 523-526. DOI: 10.15562/bmj.v11i1.3220

INTRODUCTION

Guillain-Barré Syndrome (GBS) is an acute inflammatory autoimmune polyradiculoneuritis. The incidence is approximately 0.622.66 cases / 100,000 person-years in all age groups, increasing by 20% every ten years. The relative risk for men is 1.78. GBS may show multiple clinical findings associated with polyradiculoneuritis.[1,2] It can cause acute neuromuscular paralysis with numerous clinical symptoms, including symmetric malaise, loss of sensation, and loss of deep tendon reflexes. Rarely, GBS may appear clinically as neurogenic urinary retention.[3-6]

Urinary retention is an emergency in urology. It must be managed according to its underlying causes. Urinary retention associated with an underlying neurological cause ("neurogenic bladder") carries a significantly higher risk of infection and complications. It can complicate bladder perforation, leading to peritoneal fistula and peritonitis, increasing morbidity and mortality.[1,2,7] Underactive, overactive, and to a lesser extent, overactive sphincter are significant causes of urodynamic abnormalities. The underlying mechanisms of urinary dysfunction appear to involve both underactive and overactive optic nerves in GBS.[8] Thus, this study describes a generalized peritonitis event caused by vesico-peritoneal fistula on a 22-year-old female with GBS.

CASE DESCRIPTION

A 22-year-old woman was admitted to a neurologist with lower extremity paralysis. The patient was consulted in the surgical department because of suspected systemic peritonitis. The patient complained of abdominal pain, distention, nausea, vomiting, and hematuria. The patient was diagnosed with GBS three months before the abdominal symptoms arose and had been taking medication ever since. The patient reported no family history of GBS or any autoimmune disease.

On physical examination, the patient's condition is moderately ill. Vital signs showed a mean drop in blood pressure of 100/60 mmHg, an increase in respiratory rate 24x/min, heart rate, and normal temperature. The abdomen was markedly distended with muscle stiffness and echogenic noise. No nuchal translucency was found, and a faint vowel sound was recorded on the cardiac monitor. Digital rectal examination showed diminished anal sphincter tone and collapsed rectal prolapse. Stool, mucus, or blood was not found in the gloves. Urine discharge was observed from the urethral catheter

similar to red beef broth.

Laboratory was checked on the same day. It showed Hemoglobin 9 g/dL6, Hematocrit 27.1%, Erythrocytes 3.16 x10^3/µL, leukocytes 15.3x10^3/µL, RDW 18.4%. Glucose level was 42 mg/dL, Urea 90 mg/dL, Sodium level 111 mmol/L, Potassium level 5.5 mmol/L and Chloride 85 mmol/L. A plain abdominal radiograph confirmed the presence of pneumoperitoneum. In an emergency situation, a retrograde cystography did not perform.

The patient was treated with antibiotics and underwent exploratory laparotomy. During laparotomy, the vesico-peritoneal fistula was observed. The urinary bladder was dissected, and the fistulous tract was identified while methylene blue was administrated through the urethral catheter. A Pfannenstiel incision was made to expose the bladder defect, repaired using Cyril 20 suture. The Dome of the bladder was sealed with no further leakage. General condition after surgery had been improved. A urethral catheter was retrieved seven days after surgery. Postoperative follow-up indicated no sign of complication. There was no surgical site infection observed. The patient was discharged after ten days. Routine follow-up after two weeks revealed no complaints and no site of infection.

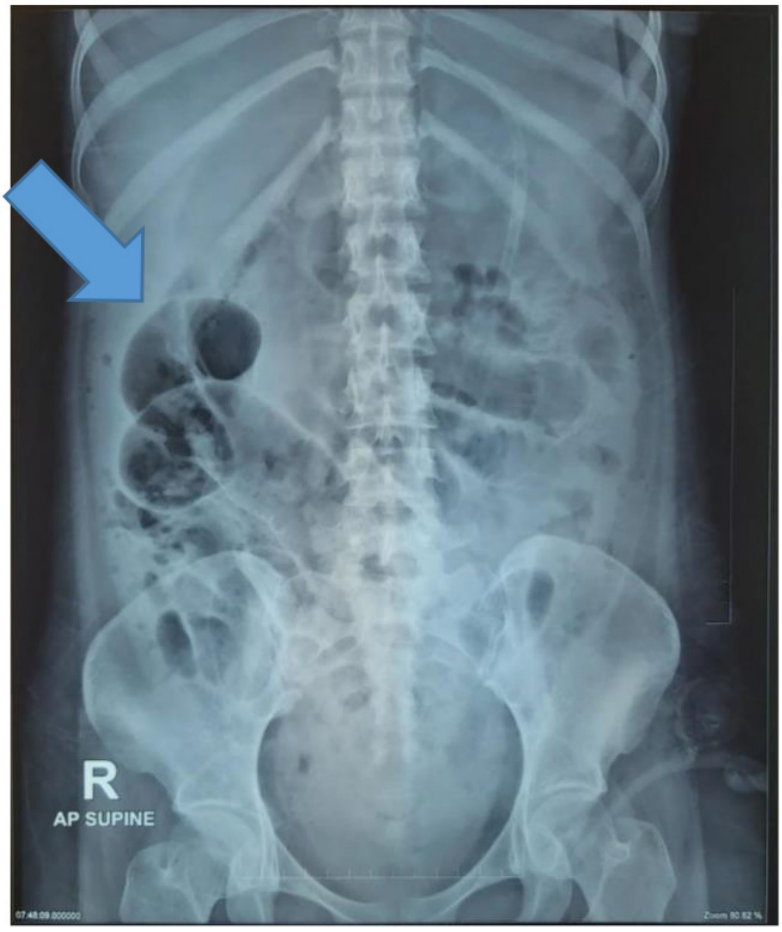

Figure 1. Plain abdominal radiograph in AP position showed pneumoperitoneum

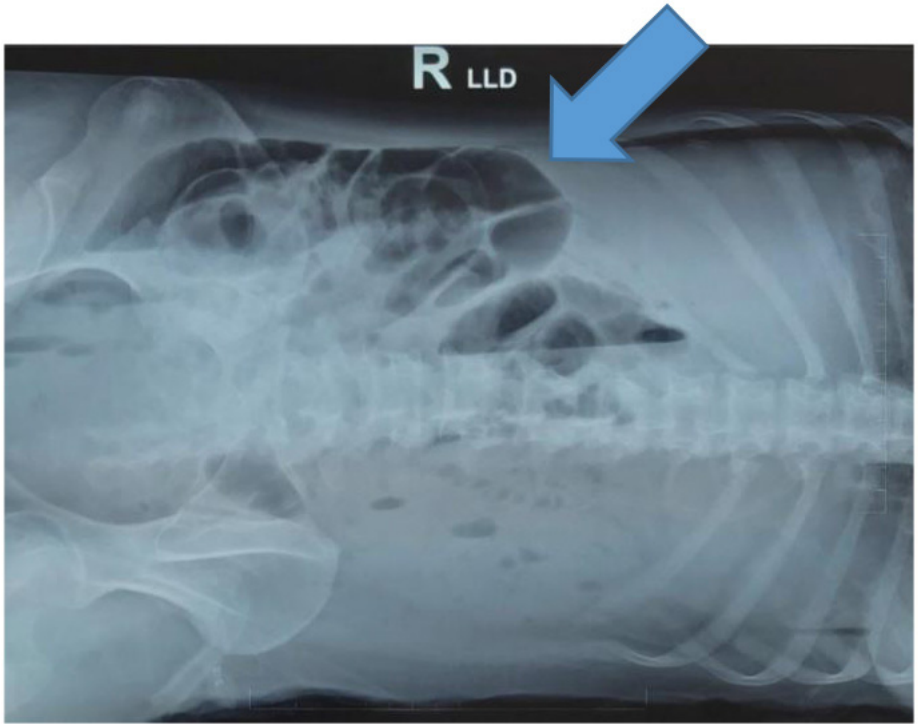

Figure 2. Plain abdominal radiograph in LLD position showed pneumoperitoneum

DISCUSSION

Cranial and peripheral cranial nerves may be of interest in GBS, but the involvement of sympathetic and parasympathetic autonomic nerve pathways is also seen in 80% of patients. Previous studies reported autonomic nervous system disorders in GBS patients with impaired bladder function, including urinary retention. Grbavac et al. reported on a cohort of 5 patients with GBS; 4 out of 5 patients had complete urinary retention followed by arrhythmia and detrusor overactivity, with or without urethral sphincter dyskinesia.[9] Sakakibara et al. examined the spectrum of urinary tract symptoms in a population of 28 patients with GBS, in which 25% of the patients had a micturition disorder during the acute phase. Urination disorders were observed in 86% in a late-stage, 43% having urinary retention, and 28% with nycturia.[10] Another study performed in

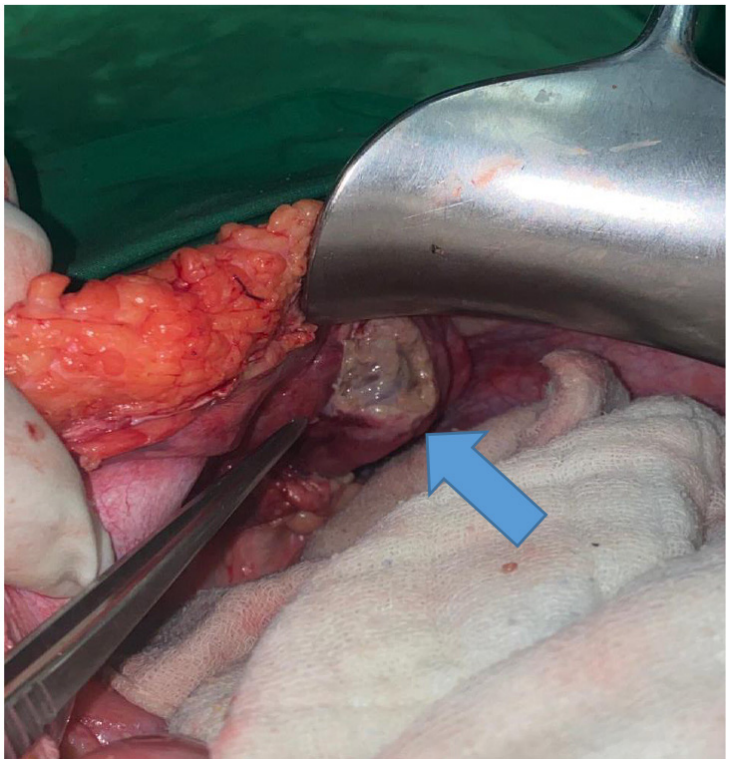

Figure 3. Intraoperative exploratory laparotomy showed a vesico-peritoneal fistula

2007 concluded urinary tract symptoms and urodynamic findings in a cohort of 65 GBS patients, 27.7% of whom had impaired glycemic function. Urinary. This study's most common urodynamic abnormalities were an underactive or overactive sphincter and rarely an overactive sphincter. The causes of various disorders have been speculated to be due to both overactive and overactive optic nerve pathways.[8]

In women, the epidemiology of this condition is not well known and much worse described. From the patient's perspective, it is usually painless and virtually asymptomatic, and effusion is relatively common. In this situation, most patients have a full bladder; leaking urine from reflux can lead to a dangerous condition with high rates of urinary retention and kidney damage.[1] In this case, the patient was hospitalized due to paralysis of the lower limbs, followed by urinary retention. The patient has a history of taking medication for Guillain-Barré syndrome. This patient is believed to have a neurogenic bladder leading to urinary retention. Then the patient was catheterized from the urethra, and the urine results showed hematuria.

Bladder perforation can be caused by urinary retention. A spontaneous, non-traumatic bladder perforation is a rare surgical emergency with a mortality rate is 47%. Enhancement of bladder pressure or/and decreased bladder wall resistance become the most common predisposing factors. A few cases of spontaneous bladder rupture have been reported caused by malignancy, neurogenic bladder dysfunction, chronic cystitis, and perforated bladder. Nonspecific conditions perform in bladder perforation such as abdominal distension, decreased urine output, and dyspnea.[11-13]

In several cases, the clinical manifestation could mimic acute peritonitis with sepsis. It hinders diagnosis and treatment thus the patient may fall into a life-threatening condition, especially in the case of spontaneous rupture of the intraperitoneal bladder diverticulum.[14] Intraperitoneal bladder rupture appears to be the result of a combination of a sudden increase in intra-abdominal pressure and a decrease in bladder wall resistance due to a bladder diverticulum.[15]

Thus, when the patient had a history of bladder rupture risk factors combined with acute abdomen symptoms, suspects an intraperitoneal bladder rupture is needed. The gold standard to diagnose this case is using a CT scan.[16] The advantages of using CT scan rather than cystography and retrograde cystography are less invasive with comparable findings and have an additional advantage for exploring the whole abdominal cavity.[15] Ultrasound can also make the diagnosis by instillation of saline and air into the bladder.[11] Cystoscopy is not recommended but can be used to place the urethral catheter in urethral stricture or false passage cases.[17]

A peritoneal fistula is considered a rare and underreported entity in the literature. Therefore, with the low morbidity and mortality reported in the literature and the absence of specific symptoms. For diagnosis and treatment need a high index of suspicion. Intermittent urine leakage may have occurred, leading to recurrent pain episodes during urination and intraperitoneal infection.[16] As the fistula develops, urinary ascites cause chronic abdominal pain, increased serum creatinine, and decreased urine output, which may mimic renal failure. Imaging studies revealed free intraperitoneal fluid, and the diagnosis was confirmed by computed tomography. The treatment is controversial because conservative surgical procedures have been performed and declared safe with limited evidence. Garza et al. reported that a 38-year-old-male with vesico-peritoneal fistula came to the emergency department with abdominal pain. The patient underwent laparoscopic dissection of the fistulous tract and primary closure of the bladder dome with Cyril 2-0.[18] In this case, the patient was not diagnosed with a retroperitoneal fistula before surgery.

In this case, because there were no specific symptoms when the patient is injected with the drug, it is difficult to analyze whether the patient has a retroperitoneal fistula or not. Observed during an exploratory laparotomy, the patient had a retroperitoneal fistula. During exploratory laparotomy, a bladder dissection was performed, and the fistula was identified while methylene blue was administered through the urinary catheter. A Pfannenstiel incision was made

to expose the bladder defect, repaired with a Cyril 20 suture. The bladder dome was sealed and did not leak further. The urinary catheter was removed seven days after surgery. Postoperative follow-up showed no signs of complications.

In our case, we have some limitations in our study. First, retrograde computed tomography is not performed out of urgency because early diagnosis and subsequent surgery are critical to an excellent surgical outcome. In addition, the etiology was not evident in our case, but constipation might have resulted in increased intraluminal pressure leading to bladder perforation. According to the etiological factor, in our case, the surgical treatment of the colonic fistula consisted of suturing the closure of the primary bladder hole. Even though no studies have compared the outcomes of surgical management of bladder malformations in benign intestinal fistulas over the long term, closure of the bladder wall is unlikely to have other short-term products. The 5-year interval between etiology and diagnosis can be explained by bladder sac formation and rupture, fistula adhesions that limit leakage, and late diagnosis.

CONCLUSION

Among GBS patients, a subclinical bladder involvement is frequently observed, supported by urodynamic assessment. Bladder dysfunction is an integral part of GBS during the acute and regressive phases of the disease. Even in a rehabilitation clinic with a neurology department, making a functional diagnosis is not always possible due to disease progression and comorbidities. During the acute phase, urine diversion can occur through a gastrointestinal catheter or a supine catheter. Urological assessment of voiding symptoms in symptomatic patients should be performed during the regressing phase of paralysis.

DISCLOSURE

Funding

This research funding did not get any specific grant from any funding agency in the public, commercial, and not-for-profit sectors.

Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper or others.

Author Contribution

All of the authors is contributed to this manuscript. Concepting this article is made by EAN and AS, data acquisition is EAN, DSW, ND, SRA, data analysis is EAN, DSW, ND, SRA, DSW, manuscript preparation is DSW, ND, and manuscript editing is SRA, DSW. Then this article is reviewed by EAN and AS. All of the take apart in literature searching.

REFERENCES

1. Serlin DC, Heidelbaugh JJ, Stoffel JT. Urinary Retention in Adults: Evaluation and Initial Management. Am Fam Physician [Internet]. 2018;98(8):496–503. Available from: https://www.ncbi.nlm.nih.gov/pubmed/30277739
2. Yahata T, Boshi E, Ino K, Nishi T. Laparoscopic Repair for Vesicoperitoneal Fistula with Vesicouterine Abscess. Gynecol Minim Invasive Ther [Internet]. 2019 Oct 24;8(4):172–5. Available from: https://pubmed.ncbi.nlm.nih.gov/31741843
3. Wieloch M, Bazylińska K, Ziemniak P. Spontaneous, idiopathic urinary bladder perforation--case report. Pol Przegl Chir [Internet]. 2013;85(12):727–9. Available from: http://dx.doi.org/10.2478/pjs-2013-0111
4. Lavelle JP. Urological Care for Patients with Progressive Neurological Conditions. Journal of Urology [Internet]. 2020;203(6). Available from: https://journals.lww.com/auajuro/Fulltext/2020/06000/Urological_Care_for_Patients_with_Progressive.59.aspx
5. Moreno-Alarcón C, Rigabert-Montiel M, López-Cubillana P, Gómez-Gómez G. Conservative management is a reasonable option in intraperitoneal bladder rupture. Arch Esp Urol [Internet]. 2014;67(9):788–91. Available from: https://www.ncbi.nlm.nih.gov/pubmed/25407155
6. Murata R, Kamiizumi Y, Tani Y, Ishizuka C, Kashiwakura S, Tsuji T, et al. Spontaneous rupture of the urinary bladder due to bacterial cystitis. J Surg Case Rep [Internet]. 2018 Sep 29;2018(9):rjy253–rjy253. Available from: https://pubmed.ncbi.nlm.nih.gov/30302191
7. Aber A, Hyder SA, Arumuham V. An Unusual Case of Spontaneous Bladder Perforation with Associated Autodialysis of the Ensuing Urinary Ascites. Mangoni AA, editor. Case Reports in Medicine [Internet]. 2011;2011:145084. Available from: https://doi.org/10.1155/2011/145084
8. Sakakibara R, Uchiyama T, Kuwabara S, Mori M, Ito T, Yamamoto T, et al. Prevalence and mechanism of bladder dysfunction in Guillain-Barré Syndrome. Neurourol Urodyn [Internet]. 2009;28(5):432–7. Available from: http://dx.doi.org/10.1002/nau.20663
9. Grbavac Z, Gilja I, Gubarev N, Bozicević D. [Neurologic and urodynamic characteristics of patients with Guillain-Barré syndrome]. Lijec Vjesn [Internet]. 1989;111(1–2):17–20. Available from: https://www.ncbi.nlm.nih.gov/pubmed/2739495
10. Sakakibara R, Hattori T, Kuwabara S, Yamanishi T, Yasuda K. Micturitional disturbance in patients with Guillain-Barré syndrome. J Neurol Neurosurg Psychiatry [Internet]. 1997 Nov;63(5):649–53. Available from: https://pubmed.ncbi.nlm.nih.gov/9408108
11. Keeler LL, Sant GR. Spontaneous rupture of a bladder diverticulum. J Urol [Internet]. 1990;143(2):349–51. Available from: http://dx.doi.org/10.1016/s0022-5347(17)39958-5
12. Mitchell T, Al-Hayek S, Patel B, Court F, Gilbert H. Acute abdomen caused by bladder rupture attributable to neurogenic bladder dysfunction following a stroke: a case report. J Med Case Rep [Internet]. 2011 Jun 29;5:254. Available from: https://pubmed.ncbi.nlm.nih.gov/21714888
13. Britto MM, Yao HHI, Campbell N. Delayed diagnosis of spontaneous rupture of a congenital bladder diverticulum as a rare cause of an acute abdomen. ANZ J Surg [Internet]. 2018;89(9):E385–7. Available from: http://dx.doi.org/10.1111/ans.14559
14. Qiao P, Tian D, Bao Q. Delayed diagnosis of spontaneous bladder rupture: a rare case report. BMC Women's Health [Internet]. 2018;18(1):124. Available from: https://doi.org/10.1186/s12905-018-0616-y
15. Quagliano P v, Delair SM, Malhotra AK. Diagnosis of Blunt Bladder Injury: A Prospective Comparative Study of Computed Tomography Cystography and Conventional Retrograde Cystography. Journal of Trauma and Acute Care Surgery [Internet]. 2006;61(2). Available from: https://journals.lww.com/jtrauma/Fulltext/2006/08000/Diagnosis_of_Blunt_Bladder_Injury__A_Prospective.25.aspx
16. Ooi WL, Sherwood BT, Stanley J, Baskaranathan S. Vesico-peritoneal fistula: a rare cause of chronic abdominal pain. Journal of Clinical Urology [Internet]. 2012 Apr 1;7(2):121–2. Available from: https://doi.org/10.1016/j.bjmsu.2012.03.001
17. Schäfer W, Abrams P, Liao L, Mattiasson A, Pesce F, Spangberg A, et al. Good urodynamic practices: uroflowmetry, filling cystometry, and pressure-flow studies. Neurourol Urodyn [Internet]. 2002;21(3):261–74. Available from: http://dx.doi.org/10.1002/nau.10066
18. Garza A, Lizárraga J, Müller G, Saldivar M, Cruz L. A vesico-peritoneal fistula in a patient with history of diverticulitis-related colovesical fistula repair: a case report. International Surgery Journal. 2020 Aug 27;7:3086.