Urology Case Reports 3 (2015) 44–46

Contents lists available at ScienceDirect

Urology Case Reports

journal homepage: www.elsevier.com/locate/eucr

Oddities

Guillain-Barre Syndrome After Robotically Assisted Laparoscopic Prostatectomy: First Case Report

Jaschar Shakuri-Rad*, Patrick W. Gavin, Shawn P. Todd, Tony T. Tran, Cody R. Christensen, Kenneth F. Shockley, Thomas J. Maatman

Michigan State University, Metro Health Hospital, 5900 Byron Center, Wyoming, MI 49519, USA

ARTICLE INFO

Article history:
Received 19 December 2014
Received in revised form
7 January 2015
Accepted 12 January 2015
Available online 11 February 2015

Keywords:
Guillain-Barre syndrome
Prostate cancer
Robotically assisted laparoscopic prostatectomy
Ascending muscle paralysis

ABSTRACT

Guillain-Barre Syndrome is a well described acute demyelinating polyradiculoneuropathy with a likely autoimmune basis characterized by progressive ascending muscle paralysis. Classically, GBS is attributed to antecedent upper respiratory and gastrointestinal infections. We present the first case of GBS after Robotically Assisted Laparoscopic Prostatectomy using the daVinci® Surgical System.

Introduction

Guillain-Barre Syndrome (GBS) is a well described acute demyelinating polyradiculoneuropathy with a likely autoimmune basis characterized by progressive ascending muscle paralysis. Classically, GBS is attributed to antecedent upper respiratory and gastrointestinal infections. Frequently associated organisms include Campylobacter Jejuni, Epstein-Barr virus, Influenza and Cytomegalovirus.[1]

There have been recent reports of GBS after cardiac, neurosurgical, orthopedic, obstetric and general surgical procedures. To our knowledge there have not been any reports of post-surgical development of GBS following laparoscopic or robotic urological procedures.

We present the first case of GBS after Robotically Assisted Laparoscopic Prostatectomy using the daVinci® Surgical System.

Patient description

A 70 year old male with clinical stage T1C and Gleason Grade 3 + 4 adenocarcinoma of the prostate underwent a nerve sparring daVinci® Robotic Assisted Laparoscopic Prostatectomy at our institution without initial post-operative complications. He was discharged home on post-operative day #1 in stable condition. Patient presented to the emergency department on POD#3 with chief complaint of inability to pass stool or flatus since surgery. At the time he did not demonstrate any neurological abnormalities and was pain free. CT scan of abdomen and pelvis revealed findings suspicious for acute postoperative ileus and patient was discharged home on conservative measures.

He returned the following day on POD#4 to the ED with complaint of generalized weakness and inability to get out of bed and marked difficulty ambulating. He was found to be hyponatremic at 126 with a temperature of 100°F. Chest X-ray findings were suspicious but not definitive for pneumonia. He was admitted to the hospital for further evaluation and started on IV antibiotics for suspected healthcare-associated pneumonia as no other cause for his symptoms could initially be elucidated. Respiratory cultures, viral titers, and urinary markers for pneumonia were negative. On POD#6 patient developed dyspnea at rest with increased generalized weakness, flaccid lower extremity paralysis with absent reflexes, and flaccid upper extremity paralysis with intact reflexes. MRI of the cervical spine did not show any acute changes. He was transferred to the intensive care unit and intubated due to respiratory decompensation.

Due to suspicion of GBS IVIG was started on POD#6. Myasthenia gravis antibody panel, Campylobacter Jejuni Antibody, CSF cytology and culture, HSV PCR, West Nile Virus CSF antibody titers, CSF LDH,

Abbreviations: POD, Post operative day; GBS, Guillain-Barre Syndrome; ED, Emergency Department; ICU, Intensive Care Unit; IVIG, Intravenous Immunoglobulin; HSV, Herpes Simplex Virus; PCR, Polymerase Chain Reaction; CSF, Cerebrospinal Fluid; RBC, Red Blood Cell; TSH, Thyroid Stimulating Hormone.

* Corresponding author. Tel.: +1 304 615 1406.
E-mail address: Jaschar@gmail.com (J. Shakuri-Rad).

2214-4420/
http://dx.doi.org/10.1016/j.eucr.2015.01.004

Table 1
Review of post-surgical GBS case reports

Author	Age/sex	Procedure	POD until Symptom Onset	Notable labs	Treatment	Outcome
Jones, et al	9/F	Laparotomy, Appendectomy	POD1	-CSF protein 50 mg/dL	IVIG	D/C on POD14 and complete recovery by 2 months
Jones, et al	6/M	Femur fracture repair	POD7	-CSF protein not reported	Supportive care	Full recovery
Kuok, et al	51/F	Exploratory laparotomy for polycystic liver disease	POD3	-CSF protein 54 mg/dL	Plasmapheresis	Full recovery at 2 months
Beskonakli, et al	41/M	L5-S1 discectomy and foraminotomy	POD14	-CSF protein 91.5 mg/dL	Supportive care	Able to walk without support at 2 months
Algahtani, et al	71/F	Elective Coronary artery bypass	POD4	-CSF protein 88 mg/dL	Plasmapheresis	D/C after 2½ months for rehab
Algahtani, et al	77/M	Cardiac Catheterization followed by emergency aortic valve replacement	POD3	-CSF protein 55 mg/dL	IVIG	D/C POD21 with mild improvement for rehab
Rosenberg, et al	58/M	Bronchoscopy, esophagoscopy, transabdominal nissen fundoplication, thoracotomy	POD9	-CSF protein 350 mg/dL	Plasmapheresis Methylprednisolone	D/C 1 month post-op to rehab facility
Gregory, et al	62/F	Lumbar decompression	POD3	-CSF protein 317 mg/dL	High dose steroid IVIG Plasmapheresis	Near full recovery within 6 months
Hogan, et al	60/M	Aortic and Mitral valve replacement	POD15	-CSF protein not reported	Plasmapheresis	Able to stand on POD27 without assistance and transferred to rehab
Hogan, et al	53/M	Coronary artery surgery	POD14	-CSF protein 102 mg/dL	Plasmapheresis	Full recovery POD40
Shuert, et al	61/M	Closed reduction of mandibular condylar fracture	POD10	-CSF protein 70 mg/dL	Steroids Antibiotics Supportive care	Patient died POD8 due to acute respiratory failure
Arnason, et al	55/F	Pneumonectomy	POD14	-CSF protein 810 mg/dL	Conservative measures	Able to walk with walker by 3 months
Arnason, et al	36/F	C-section & hysterectomy	POD7	-CSF protein 58 mg/dL	Conservative measures	Ambulatory by 8 months
Arnason, et al	70/M	Transverse colostomy	POD30	-CSF protein 144 mg/dL	Steroids Conservative measures	Ambulatory by 2½ months
Shakuri-Rad, et al	70/M	Robotically Assisted Laparoscopic Prostatectomy	POD#4	-CSF protein 10 mg/dL	IVIG Plasmapheresis	D/C POD#25 to rehab facility

CSF glucose, CSF RBC, and TSH were ordered and were negative. CSF protein was elevated at 55 mg/dL. General surgery was consulted on POD#10 for placement of tracheostomy and percutaneous gastrostomy tube. Plasmapheresis protocol was initiated on POD#14 due to lack of improvement following IVIG. Patient showed very slow but steady improvement in his symptoms but remained non-ambulatory. Patient was discharge on POD#25 to an inpatient rehabilitation facility for further care. Patient deceased from cardiovascular complication at outlying facility. Detailed records were not available for our review.

Discussion

GBS is an uncommon disease with a reported incident of approximately 3 per 100,000 person-years across all age groups favoring men slightly more than females with a suggested 20% increase in average GBS rate for every 10-year increase in age.[2] The syndrome is characterized by an acute or sub-acute onset with varying degrees of weakness, decreased or absent deep tendon reflexes, and characteristic CSF and electromyogram profiles. The pathophysiology of this disease is not completely understood but it is believed to involve an autoimmune etiology due to reactions that are based on molecular mimicry models.

Several factors have been described as contributory including viral and bacterial infections, vaccination, and surgery. Infectious etiologies are believed to comprise over 2/3 of cases with the most common organisms including Campylobacter Jejuni, Cytomegalovirus, Mycoplasma, and Epstein-Barr virus.[1] There have been limited sporadic reports of GBS after surgical procedures. Arnason and Asbury reported the first series of patients who developed post-surgical GBS in 1968. Limited case reports and series describing acute onset GBS after both spinal and general anesthesia have since been reported.[3] Gensicke et al reported the attributable risk for post-surgical GBS as 4 per 100,000 surgeries.[4]

In our review of 14 cases of GBS presenting shortly after open surgical procedures with general anesthesia there were no infectious etiologies discovered by the authors (Table 1). Of note there seems to be a trend of symptom development with a mean time of onset of 9.5 days post operatively. Mangar et al reviewed eight cases of GBS after surgical procedures using spinal anesthesia with a mean time between epidural and onset of first neurological symptom of 6.5 days. They entertained a hypothesis based on local trauma from epidural injection as a probable pathogenic mechanism, although no definitive link has been established.[5]

Conclusion

To our knowledge this is the first case of GBS after a robotic assisted laparoscopic procedure under general anesthesia. Our patient's time to symptom onset, symptomology, diagnostic studies, and outcome are in line with previously reported cases. This case contributes to the small aggregate of case reports of GBS after general anesthesia and demonstrates that minimally invasive procedures are not immune from the development of this disease process. It has been proposed that surgical procedures predispose patients to a compromised immune state which may be a factor in an inflammatory immune mediated model of GBS in surgical cases.[2] Administration of anesthetic agents cannot be excluded as a predisposing factor although there seems to be no difference between direct spinal vs general anesthesia.

Patient's undergoing minimally invasive robotically assisted laparoscopic procedures do not seem to be protected from the rare complication of post-operative GBS. The surgical team should be aware of this rare complication as early intervention often leads to favorable outcomes.

Conflict of interest

There are no conflicts of interest to be reported by any of the authors.

References

1. Hersalis Eldar A, Chapman J. Guillain Barré syndrome and other immune mediated neuropathies: Diagnosis and classification. *Autoimmun Rev*. 2014;13(4–5):525–530.
2. Sejvar JJ, Baughman AL, Wise M, Morgan OW. Population incidence of Guillain-Barré syndrome: A systematic review and meta-analysis. *Neuroepidemiology*. 2011;36(2):123–133.
3. Arnason BG, Asbury AK. Idiopathic polyneuritis after surgery. *Arch Neurol*. 1968;18(5):500–507.
4. Gensicke H, Datta AN, Dill P, et al. Increased incidence of Guillain-Barré syndrome after surgery. *Eur J Neurol*. 2012;19(9):1239–1244.
5. Mangar D, Sprenker C, Karlnoski R, et al. Rapid onset of Guillain-Barré syndrome after an obstetric epidural block. *A A Case Rep*. 2013;1(1):19–22.