RESEARCH

Case Reports
How to Write Case Reports and Case Series

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Objectives

Upon the completion of this PBLD, you will be able to:

• Write case reports
• Discuss the importance of data security
Something Extraordinary Happened in the OR….

- An adult liver transplantation case assisted with a veno-venous bypass
- A veno-venous return cannula (18 Fr) was inserted via the left jugular vein
- It migrated into the persistent left SVC of the patient and resulted in the massive left sided hemothorax.
Femoral Arterial Cannula®,
(18 Fr x 15 cm, Baxter)
Insertion of an 18 Fr. Cannula via RIJ
Surgical Removal of the VVB Cannula
Question

Should Kristin get an IRB approval to report the case?
because a case report is not research
“So, Kristin does not need any approval, right?”
UPMC

AUTHORIZATION FOR RELEASE OF PROTECTED HEALTH INFORMATION

I authorize ____________________________ to release information from the record of:

Name of Facility/Person

Patient Name: ____________________________ Birth Date: ____________ SSN/MR#: ____________

Name of Facility/Person: ____________________________ Phone: ____________ Fax: ____________

Facility/Person Address: ____________________________

for the purpose of (PROVIDE A DETAILED DESCRIPTION):

Parts 1 and 2 must be completed to properly identify the records to be released.

1. Type of records to be released and approximate date(s) of service (check all that apply):
   □ Inpatient □ Emergency Dept. Dates: ____________________________
   □ Outpatient □ Physician Office/Clinic

   I authorize the release of (check all that apply) □ Mental Health Information □ Drug and Alcohol Information contained in the records indicated above:

2. Specific information to be released (check all that apply):
   □ Consults □ Medical History & Physical Exam □ Physician Orders
   □ Discharge Summary/Instructions □ Medication Records □ Progress Notes
   □ Laboratory Reports/Tests □ Operative Report □ Psychiatric/Psychological Eval
   □ Mammography Report □ Pathology Report □ Radiology Report
   □ Emergency Dept. Report □ EKG Report(s) □ Other: ____________________________

HIV-related information contained in the parts of the records indicated above will be released through this authorization unless otherwise indicated. □ Do not release
Question

How can Kristin evaluate whether the case is worthwhile to report?
Venovenous bypass, complication


“Venovenous bypass, complication”
Question

How do you write the title of the case?
List the key words of the case

Liver transplantation

VVB cannula

Accidental Insertion

Persistent left superior vena cava
Accidental Insertion of a Percutaneous Veno-Venous Bypass Cannula into a Persistent Left Superior Vena Cava in a Patient Undergoing Liver Transplantation
Question

How do you write the abstract of the case report?
Abstract

- Key words?
- What happened in a nutshell?
- What happened in detail?
- Main message?
Abstract - Purpose

Key words?

Persistent left superior vena cava (PLSVC) is a rare congenital vascular abnormality found in 0.3% of the general population.

What happened in a nutshell?

We report herein a rare complication involving the accidental insertion of a large bore cannula into the PLSVC during liver transplantation (LT).

Abstract - Clinical Features

What happened in detail?

• A 63-yr-old man with primary sclerosing cholangitis for LT.
• Insertion of an 18 French cannula for venovenous bypass (VVB) was performed via the left IJV
• Upon initiation of VVB, profound systemic hypotension
• A chest x-ray confirmed a malposition of the VVB cannula with a large left hemothorax.
• A mini-sternotomy was performed for removal of the VVB cannula, which was found to be inserted in the PLSVC.

Malpositioning of a venous cannula in PLSVC should be anticipated as one of the potential complications of vascular access via the left internal jugular vein.

Question

What elements are included in case reports?
Three Elements of Case Reports

1. Introduction
2. Description of the case
3. Discussion
Three Elements of Case Reports

1. Introduction

What happened?
What is unique?
Why do I have to read your case report?
Introduction

Issues specific to venous cannulation via the left internal jugular vein (IJV) in comparison with the right IJV include presence of a thoracic duct orifice, higher lung cupola, smaller vascular size, and a greater tendency for the left IJV to lie anterior rather than lateral to the carotid artery. More importantly, when inserting larger less pliable catheters, the more angulated path from the left IJV to the right atrium can potentially cause the cannula to migrate to the other vessels or even to perforate the venous wall.

We report herein a rare complication which occurred during left IJV cannulation, namely, accidental insertion of an 18 French (Fr.) cannula for venovenous bypass (VVB) into a persistent left superior vena cava (PLSVC) during liver transplantation (LT), which resulted in a left hemothorax and required surgical repair.

The patient gave his consent for publication of this case report.

Three Elements of Case Reports

1. Introduction

2. Description of the Case

Details of what happened in the case

Preop – Intraop – Postop
Description of the Case

Case report

A 63-yr-old man with primary sclerosing cholangitis presented for LT. His medical condition was complicated with a recent history of sepsis and renal failure requiring hemodialysis. His model for end-stage liver disease score was 37. Prior to the LT, transthoracic echocardiography (TTE) showed a normal left ventricle with ejection fraction of 55-60%, mild left atrial enlargement, and normal right cardiac chambers. Notably, his coronary sinus was not enlarged. His preoperative vascular access included a tunneled dialysis catheter via the right IJV and a triple
After induction of general anesthesia, a central venous line with a Swan-Ganz catheter was inserted via the right IJV. Standard practice in this institution was to place a percutaneous VVB return cannula for LT cases.\(^2\) Given the potential difficulty of inserting the return cannula via the right IJV in the presence of the tunnelled dialysis catheter, the cannula was placed via the left IJV. An 18 Fr. Fem-Flex Duraflo Treated Femoral Arterial Cannula\(^{®}\) (Baxter, Irvine, CA, USA) was inserted via the left IJV in the following manner: a long guidewire was first inserted through the existing triple lumen catheter in the left IJV. After the removal of the triple lumen catheter, the VVB cannula was inserted using the guidewire. No difficulty was noted in exchanging the triple lumen catheter for the VVB cannula. After the insertion, smooth blood withdrawal as well as smooth infusion of normal saline was observed via the VVB cannula. Vital signs were stable throughout this process.
Fig. 2  The postoperative chest x-ray demonstrated a large left pleural effusion (dots). The position of the venovenous bypass return cannula (squares) via the left internal jugular vein was coursing through the left internal jugular vein and straight down toward the mediastinum.

Three Elements of Case Reports

1. Review of background knowledge
2. Review of the similar cases
3. Uniqueness of the case
4. Recommendations in similar cases in the future
5. Conclusion

3. Discussion
1. Review of background knowledge

Discussion

Persistent left superior vena cava is the most common vascular anomaly of the thoracic venous system. Since the original description in 1950, over 200 cases have been reported. This anomaly has been found in 0.3% of the general population, while a higher incidence (4.5%) has been noted in patients with congenital heart disease. Persistent left superior vena cava is often discovered when an enlarged coronary sinus is seen on echocardiography, since the sinus is the routine drainage route of PLSVC. Gonzalez-Juanatey et al. found that ten in 9,075 patients (0.11%) examined by TTE had a PLSVC along with a dilated coronary sinus. In rare cases, however, direct drainage into the left atrium has been reported. There was some variability in the thoracic vasculature, most notably the absence of the left innominate vein in 50-65% of PLSVC cases.
1. Review of background knowledge

Although some reports have associated PLSVC with sinus bradycardia and sinus arrest, the discovery of a PLSVC is primarily incidental. The presence of a dilated coronary sinus with echocardiography in the absence of elevated right atrial pressure would raise the suspicion, and further investigation using venography via the left jugular vein or the peripheral vein of the left arm would confirm diagnosis of a PLSVC.
2. Review of similar cases

Not identified (which is great!)
3. Uniqueness of the case

In our case, the index of suspicion for a PLSVC was extremely low given the normal left innominate vein, which accommodated a triple lumen catheter via the left IJV (Fig. 1), and a non-dilated coronary sinus seen during echocardiography.

We chose the left IJV for VVB return cannula placement due to the presence of a pre-existing hemodialysis catheter in the right IJV. Interestingly, insertion of the VVB cannula was accomplished without apparent difficulty using a guidewire through the pre-existing triple lumen catheter.
4. Recommendations in similar cases in the future

This case emphasizes the risk of central line insertion via the left IJV. The safety of inserting such a large bore VVB cannula via the left IJV rather than via the right IJV has not been fully established. Alternate management options might have included placement of the VVB cannula via an axillary venous cut-down or elimination of the VVB with a piggyback method. Recently, the need for the VVB for LT has been questioned, and authors of a large retrospective case series suggested the potential benefit of the retrohepatic caval preservation technique (or piggyback technique) without VVB over the use of VVB.
4. Recommendations in similar cases in the future

Furthermore, the placement of the VVB cannula should be confirmed either by direct TEE visualization of the VVB cannula tip or by performing a “bubble test” through the VVB cannula.2 The latter test would have demonstrated the immediate appearance of bubbles in the right atrium via the coronary sinus instead of via the superior vena cava and ultimately would have led to the diagnosis of a malpositioned cannula in the PLSVC. In this particular case, we acknowledge that we could have prevented the malposition of the cannula in the PLSVC by placement of TEE prior to the line exchange via the left IJV and identification of the guidewire in the superior vena cava throughout the VVB cannula placement. We also recognize that an attempt to identify the tip of the VVB cannula in the left innominate vein using the upper esophageal sagittal view of TEE could have suggested a potential malposition of the cannula. In addition, we acknowledge that the bubble test was not performed in this case.
5. Conclusion

In conclusion, all anesthesiologists should be aware that inadvertent placement of a catheter into the PLSVC is a potential complication when using the left IJV as an insertion site particularly when larger more rigid catheters are used. Placing a large bore cannula for VVB via the left IJV should be attempted only in rare cases and should be performed with extreme caution.

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Conflict of interest None declared.

References

Accidental insertion of a percutaneous venovenous cannula into the persistent left superior vena cava of a patient undergoing liver transplantation

Insertion accidentelle d’une canule veino-veineuse percutanée dans la veine cave supérieure gauche persistante d’un patient subissant une greffe hépatique

Kristin L. Schreiber, MD, PhD · Takashi Matsusaki, MD, PhD · Brian C. Bane, MD · Christian A. Bermudez, MD · Ibtesam A. Hilmi, MBChB · Tetsuro Sakai, MD, PhD
Case Report by a CBY

- As a CBY resident, Pat witnessed a 72-yr old man who underwent parotid gland resection and developed a five-hour paralysis after a dose of succinylcholine.
- He plans to submit a paper about the experience as an ASA medically challenging case.

Is this case worthwhile to report?

pseudochoelinesterase deficiency

33 papers
40 cases
Should Pat abandon his plan?
A Case Report and Literature Review!

Living Donor Liver Transplantation for Unresectable Liver Adenomatosis Associated with Congenital Absence of Portal Vein: A Case Report and Literature Review

ECMO support for right main bronchial disruption in multiple trauma patient with brain injury—a case report and literature review

Polytetrafluoroethylene fume-induced pulmonary edema: a case report and review of the literature
Pseudocholinesterase Deficiency: A Case Report and Literature Review

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ABSTRACT

A 72-year-old male underwent neck dissection and parotidectomy with facial nerve preservation. Endotracheal intubation was facilitated with succinylcholine. Prolonged muscle paralysis which was first detected after failure to stimulate the facial nerve with electrocautery, lasted five hours. Laboratory tests indicated pseudocholinesterase (PChE) deficiency. A thyroidectomy one month later was performed uneventfully using rocuronium as a muscle relaxant. Literature review revealed a total of 40 PChE deficiency cases being reported since 1956.

Keywords: Prolonged Paralysis; Succinylcholine; Pseudocholinesterase Deficiency; Dibucaine Number; Case Review
### Table 2. Summary of the reported cases of pseudocholinesterase deficiency.

<table>
<thead>
<tr>
<th>ID</th>
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<th>Age/Sex</th>
<th>Procedure</th>
<th>Agent</th>
<th>Additional agent</th>
<th>Clinical sign</th>
<th>Ventilation support (min)</th>
<th>FFP</th>
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<td>PA</td>
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<td>SCh</td>
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<td>PA</td>
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<td>5</td>
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<td>73/M</td>
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<td>PA</td>
<td>50</td>
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<td>PA</td>
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<td>10</td>
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<td>630</td>
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<td>Year</td>
<td>Age</td>
<td>Procedure</td>
<td>Paralytic</td>
<td>Pseudocholinesterase</td>
<td>Paralytic dose</td>
<td>Intubation duration</td>
<td>Outcome</td>
</tr>
<tr>
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<td>----------------------</td>
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<td>---------------------</td>
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<tr>
<td>30</td>
<td>2007</td>
<td>30M</td>
<td>Digit amputation</td>
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<td>PP</td>
<td>150</td>
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<td>2007</td>
<td>67M</td>
<td>Electro convulsive therapy</td>
<td>SCH</td>
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<td>32</td>
<td>2007</td>
<td>35F</td>
<td>Endotracheal intubation</td>
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<td>None</td>
<td>None</td>
<td>Extubated on day 13</td>
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<td>33</td>
<td>2009</td>
<td>80M</td>
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<td>None</td>
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<td>2009</td>
<td>30F</td>
<td>Cesarean section</td>
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<td>2010</td>
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<td>2011</td>
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<td>Nasal septum repair</td>
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<td>None</td>
<td>None</td>
<td>PA</td>
<td>300</td>
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</table>

**Present case**

- **Age**: 72M
- **Procedure**: Parotidectomy
- **Paralytic**: SCH
- **Pseudocholinesterase**: None
- **Paralytic dose**: PP
- **Intubation duration**: 300
- **Outcome**: No

**Note:**
- 31: Year-old (unless otherwise indicated).
- 32: Known family history of PChE-D: No paralytic was used.
- Abbreviations: F, female; M, male; wks, weeks old; TURP, transurethral resection of the prostate; SCH, succinylcholine; Mivac, mivacurium; Atrac, atracurium; Roc, rocuronium; PA, prolonged apnea; PP, prolonged paralysis; FFP, fresh frozen plasma.
<table>
<thead>
<tr>
<th>ID</th>
<th>Initial PChE (IU/L)</th>
<th>Dibucaine number</th>
<th>Cause</th>
<th>Family history of PChE-D</th>
<th>Follow-up</th>
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<td>1</td>
<td>25&lt;sup&gt;c&lt;/sup&gt;</td>
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<td>2</td>
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<td>Yes</td>
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<td>4</td>
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<td>Amoebic liver disease</td>
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<td>13</td>
<td>1300</td>
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<td>14</td>
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<td>Unknown</td>
<td>PChE 84, dibucaine 27 (6 weeks postpartum)</td>
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Table 3. Summary of the reported cases of pseudocholinesterase deficiency (continued).

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<td>n/a</td>
<td>Genetic</td>
<td>Unknown</td>
<td>PChE 1100 IUL (4 weeks post-op)</td>
</tr>
</tbody>
</table>

Note: (1) mL CO2/mL; (2) umol/mL/hr; (3) mM acetylcholine hydrolyzed/hr/L; (4) Father with heterozygosity; Mother with borderline heterozygosity; (5) Children with heterozygosity; (6) Clinical history of mother; (7) A reduced dosage (50%-75%) of succinylcholine was administered to provide paralysis and allowed faster recovery. Abbreviations: PChE, pseudocholinesterase; PChE-D, pseudocholinesterase deficiency; AH, atypical PChE homozygosity; OHSS, ovarian hyperstimulation syndrome; HELLP, hemolysis, elevated liver enzymes, low platelets syndrome.
Summary

Case Report

Evaluation

Consent

Three parts (Introduction / Case Report / Discussion)

Case Series