

Commonwealth of Massachusetts
Board of Registration in Medicine
Quality and Patient Safety Division
Retained Guidewire Advisory

Background

This advisory is being issued to draw providers' attention to the concern of retained guidewires. The Quality and Patient Safety Division (QPSD) has reviewed an increasing number of reports of retained guidewires within the last year.

A retained guidewire is classified as a Serious Reportable Event (SRE) - the unintended retention of a foreign object (RFO) in a patient after surgery or other procedure.ⁱ It is one of twenty-eight SREs defined by the National Quality Forum and required to be reported to the Department of Public Health (DPH) under chapter 305 of the Acts of 2008.ⁱⁱ These cases, typically, also meet the QPSD's Type 4 Event requirements for reporting unexpected patient outcomes.ⁱⁱⁱ

The QPSD, in collaboration with the Bureau of Health Care Safety and Quality within DPH and the Betsy Lehman Center for Patient Safety, issued a patient safety update on RFOs in August 2010. This report indicated that in 2008, more than two-thirds of RFOs were instruments, such as wires, tips and needles.^{iv} As reported in this update, this deviates from national data, where two-thirds of the RFOs were sponges.

Case Studies

Review of the QPSD reported retained guidewire cases identify a lack of education and adherence to protocol as major causes of these events.

Case One

A patient was admitted for ablation. Shortly after placement of a central line for the procedure, radiology identified a portion of retained guidewire that had fractured during the procedure. The retained wire was removed.

Learning

The central line insertion checklist should include inspection of guidewires for breakage.

Case Two

After the insertion and x-ray confirmation of a peripherally inserted central catheter (PICC), it was noticed that the stylet was still in place. It was discovered that the hospital had two types of line insertion kits, one with and one without stylets. Not all staff had been educated on the difference between the two kits.

Learning

Training was initiated to highlight the difference between the two catheters and color coding of the stylets was implemented.

Case Three

Two providers were involved in attempting a central line insertion with two insertion trays; this created unclear accountability, resulting in guidewire retention.

Learning

The central line checklist should include confirmation that all portions of a tray kit or kits have been accounted for.

Prevention

Education

Central line catheter placement is a common procedure associated with the risk of complication, including the retention of guidewires. Proper training and experience in inserting a line is essential to avoid these complications.^v

Many training options and modes are available to train both physicians and residents in inserting lines.^{vi} Simulation training has demonstrated a higher degree of comfort and ability over training with real patients.^{vii}

Protocol

Radiology Confirmation

The American College of Surgeons recommends that hospital staff be made aware that x-rays often used to rule out RFOs are unreliable and misread. A high degree of suspicion for a RFO is required, even in the presence of a normal x-ray.^{viii}

This heightens the importance of checking all pieces of equipment after a procedure is completed.

Checklist

The use of checklists to avoid medical complications has been widely documented. Adding to the checklist the removal of the guidewire and confirmation that the guidewire has been sighted by an independent observer to confirm the guidewire is intact, may help prevent its retention and ensure its full removal in case of breakage.^{ix}

Additional Strategies

The following strategies provide further best practices for the prevention of all retained foreign objects, including guidewires.

- Consistently performing surgical counts according to national standards and facility policy
- Documenting the outcomes of surgical counts and actions taken to rectify a count discrepancy
- Developing and reviewing count procedures through a collaborative process to promote consistency in practice across disciplines
- Making count policies and procedures readily available in the practice setting
- The use and placement of a vascular access device insertion sticker placed on the patient's chart completed post procedure that indicates the guidewire was removed^x

If you have questions about this advisory, please contact Tracy Gay, JD, Director, QPSD at tracy.gay@state.ma.us or 781 876 8207.

References

ⁱ National Quality Forum "Serious Reportable Events in Healthcare – 2006 Update," Washington, D.C., 2007.

ⁱⁱ M.G.L. C. 111, Section 51(H).

ⁱⁱⁱ Quality and Patient Safety Division, BORM, "Safety and Quality Reviews and Serious Reportable Events in Healthcare," Advisory March 2010.

^{iv} "Massachusetts Department of Public Health Patient Safety Update Retained Foreign Objects," August 2010.

^v "Guidewire Alert, Reducing incidents involving guidewire insertion techniques, Safety Alert 00209," NSW Department of Health, June 16, 2009.

^{vi} Duncan, J.R., Henderson, K. et al., "Creating and Evaluating a Data-Driven Curriculum for Central Venous Catheter Placement," *Journal of Graduate Medical Education*, September, 2010, p389; Evans, L., Dodge, K. et al., "Simulation Training in Central Venous Catheter Insertion: Improved Performance in Clinical Practice," *Academic Medicine*, 2010;85(9)1462-1469; "Training Framework for Clinicians New to Inserting Central Lines in NSW," CLAB ICU Project, Preventing Central Line Infections, September 2008.

^{vii} Duncan, et al.

^{viii} Brisson, Paul, MD, FACS, "Prevention of retained foreign objects," *Bulletin of the American College of Surgeons*, vol. 94, No. 11, November 2009.

^{ix} "Guidewire Alert, Reducing incidents involving guidewire insertion techniques, Safety Alert 00209," NSW Department of Health, June 16, 2009.

^x ECRI Institute, "Adverse Events in the District of Columbia" Annual Report December 2008, p16, partially citing Association of periOperative Nurses (AORN), "Best practices for preventing a retained foreign body," *AORN J* 2006 Jul;84(1Supp1):S30-6.