Open Book
Learning from close calls and adverse events

Retained vaginal swabs following childbirth

This report alerts providers to findings from review of cases reported to the Health Quality & Safety Commission (the Commission) involving retained vaginal swabs after childbirth. It includes a summary of evidence and prevention strategies for providers to consider.

Expert comment

Your birthing unit probably has a written procedure for the use of vaginal swabs. Ask yourself, is it:

- up-to-date and in line with best practice
- observed by every practitioner in your unit every time vaginal swabs are used?

Do you accept, as routine:

- documented counts
- tailed radio-opaque swabs
- patient handovers that include the swab count?

Retained vaginal swabs are not trivial for those involved. We endorse the Commission's recommendation that, unless you've done so recently, it is time for a multidisciplinary review in your birthing unit of your defences against this preventable event.

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Vaginal swab adverse event reporting in New Zealand

In a typical case of a retained vaginal swab, a new mother presents days after birth with pain, fever and vaginal discharge. On examination, a vaginal swab is found.

Review findings from the cases reported to the Commission show there was no swab count before and after the procedure or there was an assumption that swabs were counted correctly.

Retained vaginal swabs, sponges and packs following childbirth are increasingly recognised as a problem.[1] These swabs can be difficult to identify once soaked in blood. If not removed, they can lead to fever, infection, pain, secondary post-partum haemorrhage and psychological problems.[2]

Incidence of retained swabs

Between July 2013 and June 2015, nearly 1000 clinical adverse events were reported to the Commission (excluding mental health and non-district health board facilities). Of these, 28 (3 percent) related to items retained following procedures. Of those 28 cases, the largest group (12 cases, 43 percent) involved retained vaginal swabs.

Retained items are estimated to occur in 1 of every 1000–1500 abdominal operations.[3] The exact incidence of retained foreign bodies following vaginal birth is unknown.[4]

In 2010, the National Health Service (NHS) National Patient Safety Agency (NPSA) released a report identifying 99 retained vaginal swab cases in the two years from 1 April 2007 to 31 March 2009.[2] A 2003 United States (US) report found that, of 61 retained items, 69 percent involved retained swabs, with 22 percent left in the vagina.[3] A US national surgical patient safety project reported swabs were the most common retained item causing patient harm, with the vagina being the second most common site of retention (after intra-abdominal).[6] There has been a case report of maternal death following retained vaginal packing.[5]

Counting swabs is an effective defence

A case-control study of retained foreign bodies found that, of 40 cases of retained swabs, 11 of these were associated with vaginal delivery. In none of these cases had a swab count been performed.[5] The odds of a retained foreign body increased 100 times with a discrepancy in counts.[4]

An NHS review of retained vaginal swabs between 2011 and 2013 found most retained swab events occurred either before or at the perineal suturing stage. The five most common causes were reported as organisational counting procedures, documentation of counts, clinical practice and accountability, packs and swabs, and transfer of patients and handovers of care.[7]

Target zero

Human fallibility in counting is still the limiting factor in reducing the incidence of retained swabs to zero. One study showed 88 percent of retained surgical item incidents involved a final count documented as ‘correct’.[6] However, there is anecdotal evidence from some US hospitals that new and expensive radiofrequency detection and accounting systems that eliminate human counting have resulted in zero retained sponges for at least a year.[1]

Introduction of swab counts in birthing units

Swab counting is an entrenched practice in operating theatres, but has not always been considered necessary in less formal surgical settings such as emergency departments or birthing units. However UK and US authorities have advocated or mandated formal swab counting procedures in childbirth settings for several years, and recognised additional policy, process and practice features likely to improve defences, short of computerised counting systems. These are summarised below.

Risk factors for retained vaginal swabs

In contrast to operating theatres, practitioners may work in a birthing setting where no one is available to check the count. Other problems identified by commentators include:

- a lack of recognition of the potential for harm from infection and other complications
- an unclear line of responsibility for swab counts in general, particularly when both obstetric and midwifery teams are involved, leading to confusion.[8]

Some protocols advocate a mandated vaginal sweep following all vaginal deliveries to detect any retained swabs. This technique has limitations as it may lead to patient discomfort. It also depends on the experience and training of care providers.[5]

Swab design

A hospital in the US changed its type of swabs. Previously, it used plain 4 x 8 inch gauze swabs but these were small and could be retained easily in the vagina. The hospital changed to using five laparotomy swabs with radiopaque tails. These larger swabs made counting and detection easier and X-ray detection possible.[7] Many hospitals in the UK have also replaced small swabs in favour of larger swabs with radiopaque tails and advised that the tail of the swab be left in view at all times if the swab is left inside the vagina.

Bar code and radiofrequency tagging of swabs are new and expensive approaches, but have the potential to completely eliminate accidentally retained swabs.

Best practice in the UK and US

To prevent inadvertent retention of equipment, the NHS NPSA[2] and the Agency for Healthcare Research and Quality (AHRQ) in the US have made recommendations.[9] The US Food and Drug Administration (FDA) have also made recommendations in relation to identifying swabs.[4] The recommendations are set out below; in parentheses is the respective authority.

Practice changes, counting technique

- Two individuals, one of whom is a registered nurse, should do baseline, ongoing and final counts. (AHRQ)
- Where possible, do counts audibly with a colleague (double counting). Include tampons in the count; these may be used for retraction of tissues during repair of perioperative vaginal tears. (NPSA)
- Separate used swabs prior to being counted and during counting. Use a dedicated container for all used swabs. Do not remove used swabs from the areas until all counts are reconciled. (AHRQ and NPSA)
- Remove no items from the area until all counts have been reconciled and inspections completed. (AHRQ)
- If a woman is transferred to surgery in an emergency during or immediately after a vaginal birth, document any count in the patient’s record and communicate it to the surgical team. (AHRQ and NPSA)
- There should be a reconciliation process for a count discrepancy. (AHRQ)
- If a retained swab is suspected, examine the woman, with vaginal bacterial testing and a pelvic radiograph as needed. If the woman is clinically unwell, arrange an obstetric review and start appropriate therapy. (NPSA)

Equipment

- In conjunction with the supplies department, risk-assess sterile delivery and perineal suture packs and consider using X-ray-detectable swabs. (NPSA)
- Use X-ray-detectable swabs with safety features, such as tails or tags. Large swabs are more appropriate for this use. (NPSA)
- The FDA has approved three swab detection systems, all of which have the potential to save costs, including:

- bar-coding
- radiofrequency tagging
- passive radiofrequency identification tagging.

Other technologies are under investigation, such as a biodegradable surgical swab that can be degraded within a month when retained. (FDA)

Documentation of count

- There should be a standardised form for the count process (eg, paper/whiteboard/electronic). (AHRQ)
- Where appropriate, record swab counts on a wipe-clean surface in delivery rooms (eg, whiteboard). (NPSA)
- Record the counts (before and after) in the woman's maternity notes or in the electronic maternity record. (NPSA)

Education, audit, guidelines and policies

- Have written procedures for swab counts at all births (including perineal suturing). (NPSA)
- Provide all midwifery, obstetric and support staff with education and training about the counting procedure. (NPSA)
- Audit swab count practices in maternity services. (NPSA)
- Ensure lead professionals (midwives and obstetricians) are aware of their responsibility for documenting the complete swab count in the woman's health record. (NPSA)
- Share the clinical briefing sheet with relevant staff to raise awareness of the risks of swabs being unintentionally retained after vaginal births and perineal suturing. (NPSA)

Incident reporting

- Ensure staff report retained swabs after vaginal births and perineal suturing as patient safety incidents. (NPSA)
- If an unintentionally retained foreign object is found during a patient examination following discharge, notify the facility at which the woman gave birth. (AHRQ)

Health Quality & Safety Commission recommendations

1. Birthing units review their defences against retained vaginal swab following childbirth:

Taking a whole-of-unit multidisciplinary approach, review the following useful areas:

- local experience, actual and near miss events, and local surgical practice
- culture of accountability and use of human factors framework
- counting procedures
- clinical practices and equipment for counting
- recording and documenting counts in notes

- choice of packs and swabs
- transfer of patients and handovers of care.

2. Birthing units specify their approach to:

- swab counts
- swab counts in patient transfer and handover situations
- use of swabs with safety features
- reporting close calls, near misses and actual retained vaginal swab adverse events.

3. Health care professionals practising home birth:

- consider recommendations for counting practices in the context of the home birth setting.

References

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