**Literature review – List of references:**

**The references have been broadly classified into categories depending on the issues they highlight**

*References to overall importance of the problem to health and wellbeing of the public and patients and health and care services*

***National reports***

**HSIB-Detection of retained vaginal swabs and tampons following childbirth.**

**Healthcare Safety Investigation I2018/025 December 2019 Edition. Healthcare Safety Investigation Branch**

**NHS Long term plan - NHS Improvement  Jan 2019.**

**Link related to maternity as one of the priorities and patient safety within the report**

<https://www.dropbox.com/s/o3bhh2myrnp1wya/NHS%20LONG%20TERM%20PLAN%20related%20to%20maternity%20safety%20and%20quality.png?dl=0>

CQC-Opening the door to change. NHS Safety Culture and the need for transformation Dec 2018. Care Quality Commission.

NHS Imrovement

Surgical Never Events.Learning from 38 cases occurring in English hospitals between April 2016 and March 2017 .12 September 2018

US Joint Commission report: Preventing unintended retained foreign objects

https://www.jointcommission.org/assets/1/18/retained\_foreign\_objects\_faqs.pdf (Accessed on May 29, 2019)

The Australian Commission on Safety and Quality in Health Care (the Commission)- Sentinel events list

***Articles and case reports***

The recurring problem of retained swabs and instruments. Best practice and research clinical Obstetrics and Gynaecology. 2013

Montasser A.Mahran, Eman Toeima, E.P.Morris

<https://doi.org/10.1016/j.bpobgyn.2013.03.001>

Never Events – the ongoing problem of the retained vaginal sponge/swab. BJOG perspectives. British Journal of Obstetrics and Gynaecology.2016.

Helen Bolton

https://doi.org/10.1111/1471-0528.14041

Retained Surgical Foreign Bodies: A Comprehensive Review of Risks and Preventive Strategies.2009

S. P. Stawicki, D. C. Evans, J. Cipolla et al

Scandinavian Journal of Surgery.

https://doi.org/10.1177/145749690909800103

Improving safety in the operating room: a systematic literature review of retained surgical sponges

Wan, Wenshuaia; Le, Thuanb; Riskin, Lorenc; Macario,

Current Opinion in Anaesthesiology: 2009

doi: 10.1097/ACO.0b013e328324f82d

Copeland A, Cochran A, Collins K.Retained surgical sponge (gossypiboma) and other retained surgical items: Prevention and management. Up To Date- Evidence based Clinical Decision Support.

https://www.uptodate.com/content/Retained-surgical-sponge-(gossypiboma)-and-other retained-surgical-items:-Prevention-and-management

Bell R. Hide and seek, the search for a missing swab: a critical analysis. J Perioper Pract. 2012 May;22(5):151-6. doi: 10.1177/175045891202200503. PMID: 22720504.

Patial T, Thakur V, Vijhay Ganesun N, Sharma M. Gossypibomas in India - A systematic literature review. J Postgrad Med. 2017 Jan-Mar;63(1):36-41. doi: 10.4103/0022-3859.198153. PMID: 28079043; PMCID: PMC5394815.

Feldman DL. Prevention of retained surgical items. Mt Sinai J Med. 2011 Nov-Dec;78(6):865-71. doi: 10.1002/msj.20299. PMID: 22069210.

Porteous J. Surgical counts can be risky business! Can Oper Room Nurs J. 2004 Dec;22(4):6-8, 10, 12. PMID: 15709630.

Tumer AR, Yasti AC. Medical and legal evaluations of the retained foreign bodies in Turkey. Leg Med (Tokyo). 2005 Oct;7(5):311-3. doi: 10.1016/j.legalmed.2005.04.004. PMID: 16043376.

Schelhaas E, Mastboom WJ. Een achtergebleven gaas als oorzaak voor onbegrepen buikklachten [A retained gauze as a cause of unexplained abdominal complaints]. Ned Tijdschr Geneeskd. 2002 Feb 9;146(6):241-5. Dutch. PMID: 11865650.

Lacombe C, d'alincourt A, Lerat F, Goura à Mougnol E. Quid? [What is it? Abdominal foreign body and small intestine fistula]. J Radiol. 2000 Jun;81(6):641-2. French. PMID: 10844344.

*References to total number of surgeries in UK*

T. E. F. Abbott, A. J. Fowler, T. D. Dobbs, E. M. Harrison, M. A. Gillies, R. M. Pearse, Frequency of surgical treatment and related hospital procedures in the UK: a national ecological study using hospital episode statistics, *BJA: British Journal of Anaesthesia*, Volume 119, Issue 2, August 2017, Pages 249–257, <https://doi.org/10.1093/bja/aex137>

*References to Litigation burden and costs*

Links to copy paste in browser:

https://e1cf0d39-bf70-4edc-8252-971a0e7482f8.filesusr.com/ugd/d0e9ff\_8fb55c2f8378423aaef11e5db0efbb5f.pdf

https://e1cf0d39-bf70-4edc-8252- 971a0e7482f8.filesusr.com/ugd/d0e9ff\_422b566e3d3645e598e8b83049e84d2b.pdf

In the US the average cost incurred form litigation in these cases is estimated to be more than $50,000

Ref

Gawande AA, Studdert DM, Orav EJ, Brennan TA, Zinner MJ. Risk factors for retained instruments and sponges after surgery. N Engl J Med. 2003 Jan 16;348(3):229-35. doi: 10.1056/NEJMsa021721. PMID: 12529464.

Kaiser CW, Friedman S, Spurling KP, Slowick T, Kaiser HA. The retained surgical sponge. Ann Surg. 1996 Jul;224(1):79-84. doi: 10.1097/00000658-199607000-00012. PMID: 8678622; PMCID: PMC1235250.

*Increased length of stay and mortality (AHRQ- association of healthcare research and quality data)*

According to the report issued by association of healthcare research and quality, the discovery of a retained foreign body added four days to the average hospital stay and 57 patients died because of this type of error.

Zhan C, Miller MR. Excess length of stay, charges, and mortality attributable to medical injuries during hospitalization. JAMA. 2003 Oct 8;290(14):1868-74. doi: 10.1001/jama.290.14.1868. PMID: 14532315.

*References to overall incidence and in emergency operations and surgery in children, reports from different countries and different surgeries*

Teixeira PG, Inaba K, Salim A, Brown C, Rhee P, Browder T, Belzberg H, Demetriades D

Retained foreign bodies after emergent trauma surgery: incidence after 2526 cavitary explorations. Am Surg. 2007;73(10):1031.

Pubmed MID: 17983075

Birolini DV, Rasslan S, Utiyama EM. Unintentionally retained foreign bodies after surgical procedures. Analysis of 4547 cases. Rev Col Bras Cir. 2016 Feb;43(1):12-7. English, Portuguese. doi: 10.1590/0100-69912016001004. PMID: 27096851.

Yildirim T, Parlakgumus A, Yildirim S. Diagnosis and management of retained foreign objects. Journal College Physicians Surgeons Pak. 2015 May;25(5):367-71. PMID: 26008665.

Camp M, Chang DC, Zhang Y, Chrouser K, Colombani PM, Abdullah F

Risk factors and outcomes for foreign body left during a procedure: analysis of 413 incidents after 1 946 831 operations in children.

Arch Surg. 2010;145(11):1085.

DOI: [10.1001/archsurg.2010.241](https://doi.org/10.1001/archsurg.2010.241)

Corrigan S, Kay A, O'Byrne K, Slattery D, Sheehan S, McDonald N, Smyth D, Mealy K, Cromie S. A Socio-Technical Exploration for Reducing & Mitigating the Risk of Retained Foreign Objects. Int J Environ Res Public Health. 2018 Apr 10;15(4):714. doi: 10.3390/ijerph15040714. PMID: 29642646; PMCID: PMC5923756.

Research grant funded by the Health Research Board of *Ireland Research Collaborative* in Quality and Patient Safety

Murdock D. Trauma: when there's no time to count. AORN J. 2008 Feb;87(2):322-8. doi: 10.1016/j.aorn.2007.07.008. PMID: 18323023.

*Reference about underreporting*-Terkimbi UB, Joseph IT, Barnabas E. Retained Post-Operative Foreign Body of Gynaecologic Origin at Ascending Colon, Gynecol Obstet Case Rep. 2016, 2:2. doi:10.21767/2471-8165.1000028

*Reference about underreporting in developing world*

Birolini DV, Rasslan S, Utiyama EM. Unintentionally retained foreign bodies after surgical procedures. Analysis of 4547 cases. Rev Col Bras Cir. 2016 Feb;43(1):12-7. English, Portuguese. doi: 10.1590/0100-69912016001004. PMID: 27096851

 Iftikhar, T.,Sultana, N., Shah, S.A. Gossypiboma: An underreported surgical mishap

2017/10/01. Rawal Medical Journal

*References to human error in counting, count discrepancies and risk of retained object when there is a count discrepancy*

*Greenberg et al study*- At least one count discrepancy occurred in 12.8% of 148 operations (approximately one in eight operations); 41% of the discrepancies were due to process errors, including miscounts mathematical errors or documentation problems and 59% due to a misplaced surgical item.

Greenberg CC, Regenbogen SE, Lipsitz SR, Diaz-Flores R, Gawande AA. The frequency and significance of discrepancies in the surgical count. Ann Surg. 2008 Aug;248(2):337-41. doi: 10.1097/SLA.0b013e318181c9a3. PMID: 18650646.

*Christian CK et al study*-In a study that detailed activities doing ten complex general surgery cases and academic hospital accounting was that was in direct competition with the primary patient centred activities and average of 35 minutes per case was dedicated to counting representing 14.5% of nursing time during the operation. In spite of the time involved 17 count discrepancies were observed, 11 which disrupted activities of the surgical team. The observational team identified two events labelled as ‘safety compromising’ that occurred when attempt will be made to reconcile an inconsistent count.

Christian CK, Gustafson ML, Roth EM, Sheridan TB, Gandhi TK, Dwyer K, Zinner MJ, Dierks MM. A prospective study of patient safety in the operating room. Surgery. 2006 Feb;139(2):159-73. doi: 10.1016/j.surg.2005.07.037. PMID: 16455323.

Gawande AA, Studdert DM  study and Greenberg CC, Gawande AA study-

The odds of a retained foreign body are increased 100-fold if there is a discrepancy between the initial and final count.

Gawande AA, Studdert DM, Orav EJ, Brennan TA, Zinner MJ

Risk factors for retained instruments and sponges after surgery.

N Engl J Med. 2003;348(3):229.

<https://doi.org/10.1056/nejmsa021721>

Greenberg CC, Gawande AA. Beyond counting: current evidence on the problem of retaining foreign bodies in surgery? Ann Surg. 2008 Jan;247(1):19-20. doi: 10.1097/SLA.0b013e318160c194. PMID: 18156917.

Steelman, Schaapveld et al study-

The cost of reconciling incorrect- unresolved swab counts is considerable. Peri-operative personnel required from one to 90 minutes of additional time to reconcile each of 212 incorrect/unresolved counts. Using an estimate of $62 per minute of operating room time, one study estimated that the total annualised cost of operating room time spent searching for sponges and ruling out the presence of potentially retained sponges at a busy level 1 trauma centre hospital at $219,056

Steelman VM, Schaapveld AG, Perkhounkova Y, Storm HE, Mathias M. The Hidden Costs of Reconciling Surgical Sponge Counts. AORN J. 2015 Nov;102(5):498-506. doi: 10.1016/j.aorn.2015.09.002. PMID: 26514707.

*Sensitivity, specificity, positive predictive value of counting*

Egorova NN, Moskowitz et al. Managing the prevention of routine surgical instruments; what is the value in counting? Ann Surg 2008; 247:13 -18

Sensitivity of counts process is 77% and the positive predictive value is 1.6%.

88% of retained foreign bodies were associated with a correct count.

According to the Gawande et al report a positive likelihood ratio of 113, meaning that’s the odds of retained for are increased 100 times if there is a persistent discrepancy

*Count practice variability*

Assessment of the policies and practices indicated that clinical practice requirements in the policies varied greatly, and there was a high degree of count practice variability among staff members.

Edel EM. Surgical count practice variability and the potential for retained surgical items. AORN J. 2012 Feb;95(2):228-38. doi: 10.1016/j.aorn.2011.02.014. PMID: 22283914.

*Counting is time intensive occupying up to 14% of operative time*

D Hariharan and DN Lobo. Retained surgical sponges, needles and instruments.

Ann R College of Surgery England.2015;95(2) 87-92.

<https://doi.org/10.1308/003588413X13511609957218>

Regenbogen SE, Greenberg CC, Resch SC, Kollengode A, Cima RR, Zinner MJ, Gawande AA. Prevention of retained surgical sponges: a decision-analytic model predicting relative cost-effectiveness. Surgery. 2009 May;145(5):527-35. doi: 10.1016/j.surg.2009.01.011. Epub 2009 Mar 21. PMID: 19375612; PMCID: PMC2725304.

Christian CK, Gustafson ML, Roth EM, Sheridan TB, Gandhi TK, Dwyer K, Zinner MJ, Dierks MM. A prospective study of patient safety in the operating room. Surgery. 2006 Feb;139(2):159-73. doi: 10.1016/j.surg.2005.07.037. PMID: 16455323.

*References to imaging done in cases of retained items*

Mathew RP, Thomas B, Basti RS, Suresh HB. Gossypibomas, a surgeon's nightmare-patient demographics, risk factors, imaging and how we can prevent it. Br J Radiol. 2017 Feb;90(1070):20160761. doi: 10.1259/bjr.20160761. Epub 2017 Jan 3. PMID: 27885854; PMCID: PMC5685123.

Radiology challenges in diagnosis:

Imoto, S., Shinjo, E., Aoyama, K., & Takenaka, I. (2018). A case of failure to detect lost surgical sponges with intraoperative radiography: A pitfalls in detecting retained sponges. Japanese Journal of Anesthesiology, 67(8), 844–846.

**Cases where retained swab led to misdiagnosis**

Boghratian AH, Al-Taee AM. Gossypiboma Masquerading as Small Bowel Malignancy. Middle East J Dig Dis. 2020 Apr;12(2):123-125. doi: 10.34172/mejdd.2020.172. PMID: 32626566; PMCID: PMC7320991.

Atay M, Ahmad IC, Bilgin M, Kocakoc E. Gossypiboma/textiloma mimicking as tumour recurrence. J Pak Med Assoc. 2014 Jun;64(6):708-10. PMID: 25252498.

Maynard J, Shah N, Groom K, Khan S. Gossypiboma: a hidden passenger. BMJ Case Rep. 2015 Aug 25;2015:bcr2015212229. doi: 10.1136/bcr-2015-212229. PMID: 26307651; PMCID: PMC4550857.

Kim TH, Lee HH. Gossypiboma misdiagnosed as uterine subserosal myoma. J Minim Invasive Gynecol. 2015 May-Jun;22(4):534. doi: 10.1016/j.jmig.2014.11.004. Epub 2014 Nov 11. PMID: 25460523.

Szymocha M, Pacan M, Anufrowicz M, Jurek T, Rorat M. Leaving a foreign object in the body of a patient during abdominal surgery: still a current problem. Pol Przegl Chir. 2019 May 15;91(6):35-40. doi: 10.5604/01.3001.0013.2024. PMID: 31849358.

Nemati MH. Mediastinal gossypiboma simulating a malignant tumour. Interact Cardiovasc Thorac Surg. 2012 Oct;15(4):783-5. doi: 10.1093/icvts/ivs260. Epub 2012 Jul 10. PMID: 22786789; PMCID: PMC3445363.

Kim TH, Lee HH. Omental Teratoma Misdiagnosed as Gossypiboma. J Minim Invasive Gynecol. 2015 Jul-Aug;22(5):709. doi: 10.1016/j.jmig.2014.12.005. Epub 2014 Dec 10. PMID: 25497163.

Mavrigiannaki PE, Dastamani C, Vouza E, Lambropoulou E, Kairi-Vassilatou E, Kondi-Pafiti A. Gossypiboma: a rare abdominal lesion of women after cesarean section, usually misdiagnosed as a neoplasm. Clin Exp Obstet Gynecol. 2011;38(3):294-6. PMID: 21995171.

Lebas L, Dupuis M, Solovei L, Jaffro M, Grunenwald E, Pontier-Marchandise S, Dahan M, Didier A. Vingt ans après… Histoire d’un textilome intra-thoracique [Twenty years later… A story of intra-thoracic textiloma]. Rev Mal Respir. 2019 Feb;36(2):214-218. French. doi: 10.1016/j.rmr.2018.04.009. Epub 2018 Nov 13. PMID: 30446182.

Rafique M. Vesical gossypiboma. J Coll Physicians Surg Pak. 2003 May;13(5):293-5. PMID: 12757684.

Pandey S, Aggarwal A, Singh V, Sinha RJ. Gossypiboma masquerading as nephrocutaneous fistula. BMJ Case Rep. 2018 Sep 27;2018:bcr2018225992. doi: 10.1136/bcr-2018-225992. PMID: 30262535; PMCID: PMC6169637.

Dubois RL, Raisig E, Stanifer BP. Gossypiboma Mimicking Fluorodeoxyglucose-avid Lung Nodule. Ann Thorac Surg. 2020 Jun;109(6):e403-e405. doi: 10.1016/j.athoracsur.2019.09.083. Epub 2019 Nov 21. PMID: 31760056.

Zhang H, Jiang Y, Wang Q, Liu J. Lower abdominal gossypiboma mimics ovarian teratoma: a case report and review of the literature. World J Surg Oncol. 2017 Jan 6;15(1):6. doi: 10.1186/s12957-016-1082-3. PMID: 28061867; PMCID: PMC5217399.

Puvanesarajah V, Fayad LM, Rao SS, McCarthy EF, Morris CD. Extremity gossypiboma mimicking sarcoma: case report and review. Skeletal Radiol. 2019 Apr;48(4):629-635. doi: 10.1007/s00256-018-3059-5. Epub 2018 Sep 10. PMID: 30203183.

Pyo WK, Kim WK, Kim JB. A Huge Pericardial Gossypiboma Causing Severe Cardiac Dysfunction. Ann Thorac Surg. 2020 Mar;109(3):e167-e169. doi: 10.1016/j.athoracsur.2019.06.040. Epub 2019 Aug 7. PMID: 31400330.

Adamicová K, Janíčková M, Mikušková K, Statelová D. Gossypiboma mimicking recurrent mandibular tumor: case report. Cesk Patol. 2020 Summer;56(3):168-171. English. PMID: 33076669.

Akpinar A, Ucler N, Ozdemir CO. Textiloma (gossypiboma) mimicking recurrent intracranial abscess. BMC Res Notes. 2015 Aug 30;8:390. doi: 10.1186/s13104-015-1315-5. PMID: 26318152; PMCID: PMC4553210.

Tanrıkulu Y, Şen Tanrıkulu C, Yılmaz G, Bıçakcı E. Idiopathic weight loss due to an entero-enteric fistula from a gossypiboma retained for 27 years. Turk J Surg 2018; 34: 65-67.ORCID IDs of the authors:Y.T. 0000-0001-8432-2119C.Ş.T. 0000-0001-8166-3823G.Y. 0000-0001-5290-1298E.B. 0000-0002-3731-0040

Gossypiboma Mimicking a Mesenchymal Tumor: A Report of a Rare Case

Unknown ethiology, Challenging differential diagnosis, Unusual or unexpected effect of treatment, Diagnostic / therapeutic accidents, Educational Purpose (only if useful for a systematic review or synthesis)

Huseyin Eken, Mehmet Soyturk, Gurhan Balci, Deniz Firat, Orhan Cimen, Oktay Karakose, Erkan Somuncu

Department of General Surgery, Erzincan University, Erzincan, Turkey

Am J Case Rep 2016; 17:27-30

Atabey, C., Turgut, M., & Ilica, A. (2009). Retained surgical sponge in differential diagnosis of paraspinal soft-tissue mass after posterior spinal surgery: Report of eight cases. Neurology India, 57(3), 320–323.

Kobayashi T, Miyakoshi N, Abe E, Abe T, Suzuki T, Takahashi M, Shimada Y. Gossypiboma 19 years after laminectomy mimicking a malignant spinal tumour: a case report. J Med Case Rep. 2014 Sep 18;8:311. doi: 10.1186/1752-1947-8-311. PMID: 25236490; PMCID: PMC4177374.

Atabey, C., Turgut, M., & Ilica, A. (2009). Retained surgical sponge in differential diagnosis of paraspinal soft-tissue mass after posterior spinal surgery: Report of eight cases. Neurology India, 57(3), 320–323.

Sahin-Akyar G, Yağci C, Aytaç S. Pseudotumour due to surgical sponge: gossypiboma. Australas Radiol. 1997 Aug;41(3):288-91. doi: 10.1111/j.1440-1673.1997.tb00675.x. PMID: 9293682.

Jarbou SM, AlKurdi M, Al-Daod K. Pseudotumour due to retained surgical sponge (gossypiboma). East Mediterr Health J. 2004 May;10(3):455-7. PMID: 16212226.

Did we forget something? AORN J. 2010 May;91(5):644-583. doi: 10.1016/j.aorn.2010.02.010. PMID: 20451008.

Atypical Case of a Painful Presacral Tumor

Challenging differential diagnosis, Diagnostic / therapeutic accidents, Rare disease

Franziska Näf, Matthias Choschzick, Gian A. Melcher.Department of Surgery, Hospital Uster, Uster, Switzerland. Am J Case Rep 2015; 16:760-762

Retained surgical sponge simulating intestinal tuberculosis.

[Gupta M](https://www.mendeley.com/authors/57209554520/), [Bandlish,M](https://www.mendeley.com/authors/6503878013/)[Kumar A](https://www.mendeley.com/authors/57203774810/) et al.

Indian journal of gastroenterology: official journal of the Indian Society of Gastroenterology (1997) 16(2) 68-69.

Amjad Kanj, Ayman O. Soubani, Hussam Tabaja, Said El Zein, Mirna Fares, Nadim Kanj,

Migrating gossypiboma mimicking aspergilloma twenty years after mediastinal surgery,

Respiratory Medicine Case Reports, Volume 25, 2018, Pages 184-186,

ISSN 2213-0071 .

**Medicolegal aspects articles**

Gualniera P, Scurria S. Retained surgical sponge: Medicolegal aspects. Leg Med (Tokyo). 2018 Mar;31:78-81. doi: 10.1016/j.legalmed.2018.01.003. Epub 2018 Feb 1. PMID: 29413994.

Underreporting and medicolegal

Kaiser CW, Friedman S, Spurling KP, Slowick T, Kaiser HA. The retained surgical sponge. Ann Surg. 1996 Jul;224(1):79-84. doi: 10.1097/00000658-199607000-00012. PMID: 8678622; PMCID: PMC1235250.

Yakar A, Atacan SÇ, Yakar F, Ziyade N, Gündoğmuş ÜN. Medicolegal consequences of thoracic gossypiboma: A case report. J Forensic Leg Med. 2016 Aug;42:65-7. doi: 10.1016/j.jflm.2016.05.010. Epub 2016 May 11. PMID: 27262263.

Jessica Falleti, Anna Somma, Francesca Baldassarre, Antonello Accurso, Antonio D’Ettorre, Luigi Insabato, Unexpected autoptic finding in a sudden death: Gossypiboma,

Forensic Science International, Volume 199, Issues 1–3,

2010,Pages e23-e26, ISSN 0379-0738,

Complications due to the problem

Cruz RJ Jr, Poli de Figueiredo LF, Guerra L. Intracolonic obstruction induced by a retained surgical sponge after trauma laparotomy. J Trauma. 2003 Nov;55(5):989-91. doi: 10.1097/01.TA.0000027128.99334.E7. PMID: 14608181.

*References to historical cases, risk factors and solutions*

Pack left in the abdomen after operation. British Medical Journal 1931; 1:730 – 732.

<https://doi.org/10.1136/bmj.1.3668.730>

Wilson, Henry Parke Custis. Foreign bodies left in the abdomen after laparotomy. 1884. Transactions of the American Gynecological Society, vol. 9, pp. 109–112, 1884.

US National Library Archives link:

<https://collections.nlm.nih.gov/?f%5Bdrep2.authorAggregate%5D%5B%5D=Wilson%2C+H.+P.+C.+%28Henry+Parke+Custis%29%2C+1827-1897%2C+author>

 R Wheeler, S Blackburn, H Biggs

Seeking responsibility for the lost swabs? Search Elsewhere. PMC. US National Library of Medicine. Ann R College of Surgery England 2014;96(3):177-180.

Stawicki SP, Moffatt-Bruce SD, Ahmed HM et al

Retained surgical items: a problem yet to be solved.

J Am Coll Surg. 2013 Jan;216(1):15-22. Epub 2012 Oct DOI: [10.1016/j.jamcollsurg.2012.08.026](https://doi.org/10.1016/j.jamcollsurg.2012.08.026)

Gawande AA, Studdert DM, Orav EJ, Brennan TA, Zinner MJ

Risk factors for retained instruments and sponges after surgery.

N Engl J Med. 2003;348(3):229.

<https://doi.org/10.1056/nejmsa021721>

D Hariharan and DN Lobo. Retained surgical sponges, needles and instruments.

Ann R College of Surgery England.2015;95(2) 87-92.

https://doi.org/10.1308/003588413X13511609957218

[J W Hyslop](https://pubmed.ncbi.nlm.nih.gov/?term=Hyslop+JW&cauthor_id=7089613), [K I Maull](https://pubmed.ncbi.nlm.nih.gov/?term=Maull+KI&cauthor_id=7089613). Natural history of the retained surgical sponge.

South Med J. 1982;75(6):657.

DOI: [10.1097/00007611-198206000-00006](https://doi.org/10.1097/00007611-198206000-00006)

McLeod RS, Bohnen JM; CAGS Evidence Based Reviews in Surgery Group. Canadian Association of General Surgeons Evidence Based Reviews in Surgery. 9. Risk factors for retained foreign bodies after surgery. Can J Surg. 2004 Feb;47(1):57-9. PMID: 14997928; PMCID: PMC3211800.

Sarr MG. Editor's note: Retained foreign bodies--why do we still allow them to occur? Surgery. 2005 Mar;137(3):304-5. doi: 10.1016/j.surg.2004.10.005. PMID: 15746783.

Jackson S, Brady S. Counting difficulties: retained instruments, sponges, and needles. AORN J. 2008 Feb;87(2):315-21. doi: 10.1016/j.aorn.2007.07.023. PMID: 18323022.

[Reducing the risk of retained swab after perineal suturing, Malaysia Guidelines Link](https://www.moh.gov.my/index.php/database_stores/attach_download/386/237),

Communication about the error to patients- duty of candour

[How surgeons disclose medical errors to patients: A study using standardized patients](https://www.mendeley.com/catalogue/4bb547cf-9e71-3d9d-93f6-e8c2fdb28dac)

[Chan D. K.](https://www.mendeley.com/authors/57198491434), [Gallagher T. H.](https://www.mendeley.com/authors/7202310505), [Levinson W.](https://www.mendeley.com/authors/7102080674)Surgery (2005)

*Articles from different countries*

France

Vayre F, Ollivier JP. Gossypibome intra-thoracique [Intrathoracic gossypiboma]. Presse Med. 1998 May 16;27(18):889. Article in French. Erratum in: Presse Med 1998 Sep 5;27(25):1279. PMID: 9767881.

Greece

Salemis NS, Gemenetzis G, Lagoudianakis E. Gossypiboma of the breast. Am Surg. 2012 Mar;78(3):E125-6. PMID: 22524733.

Dubai

Singh C, Gupta M. Gossypiboma versus Gossip-Boma. Case Rep Radiol. 2011;2011:705062. doi: 10.1155/2011/705062. Epub 2011 Oct 16. PMID: 22606557; PMCID: PMC3350273.

Italy

Salzano A, De Rosa A, Borruso G, Giordano G, Gatta G. Un caso di garzoma del ginocchio. Diagnosi con Tomografia Computerizzata [A case of gossypiboma of the knee. Its computed tomographic diagnosis]. Radiol Med. 2000 Mar;99(3):188-9. Italian. PMID: 10879169.

Spain

Morales M, Pérez V, Picón G, Vander J, Calpena R, Candela F, Compañ A, García S, Meroño E, Medrano J. Gasa quirúrgica retenida simulando un quiste hepático [A retained surgical sponge simulating a hepatic cyst]. Rev Esp Enferm Dig. 1994 Jun;85(6):488-9. Spanish. PMID: 8068430.

Russia

Levashov IuN, Varlamov VV, Smirnov VM. Diagnostika inorodnykh tel, ostavlennykh pri operatsiiakh v plevral'noĭ polosti [The diagnosis of foreign bodies left behind in the pleural cavity during operations]. Vestn Khir Im I I Grek. 1992 May;148(5):231-4. Russian. PMID: 1302962.

Urman MG, Davidov MI. Neobychnye sluchai mnozhestvennykh rezidual'nykh tekstil'nykh inorodnykh tel [Unusual cases of multiple residual textile foreign bodies]. Vestn Khir Im I I Grek. 1997;156(5):82-3. Russian. PMID: 9490545.

Subbotin VM, Davidov MI. Prichiny ostavleniia inorodnykh tel v briushnoĭ polosti i profilaktika étogo oslozhneniia [The reasons for leaving foreign bodies in the abdominal cavity and the prevention of this complication]. Vestn Khir Im I I Grek. 1998;157(4):79-84. Article in Russian. PMID: 9825446.

US, Arkansas

Avery JK. So, who's counting? Tenn Med. 2009 Sep;102(9):45. PMID: 19791539.

Brazil

Silva SM, Sousa JB. Gossipiboma após operação abdominal é situação clínica desafiadora e sério problema médico legal [Gossypiboma after abdominal surgery is a challenging clinical problem and a serious medicolegal issue]. Arq Bras Cir Dig. 2013 Jun;26(2):140-3. Portuguese. doi: 10.1590/s0102-67202013000200015. PMID: 24000029.

Canada

El Akri Abdelhafid et al., A serious medico-legal problem after surgery: Gossypiboma .Montreal University, Canada. Surgery Curr Res 2014, 4:6

Mexico

Aguirre CJF, Chávez VG, Huitrón AGA. Intra-abdominal gossypibomas. Frequency and attitude of the Mexican surgeon. Cir Gen. 2004;26(3):203-207.

Chile

Parra M, Oppliger F, Berríos R, Schiappacasse G. Intrathoracic gossypiboma presenting 52 years later as a chest mass. Asian Cardiovasc Thorac Ann. 2015 Jun;23(5):596-8. doi: 10.1177/0218492314557181. Epub 2014 Oct 27. PMID: 25348160.

India

Pujahari AK. Gossypiboma: three cases. Trop Gastroenterol. 2010 Jul-Sep;31(3):217-8. PMID: 21560528.

 Rajagopal A, Martin J. Gossypiboma--"a surgeon's legacy": report of a case and review of the literature. Dis Colon Rectum. 2002 Jan;45(1):119-20. doi: 10.1007/s10350-004-6124-1. PMID: 11786775.

Pakistan

Khan HS, Malik AA, Ali S, Naeem A. Gossypiboma as a cause of intestinal obstruction. J Coll Physicians Surg Pak. 2014 Nov;24 Suppl 3:S188-9. PMID: 25518768.

China

Fan T, Wang W, Guo X, Geng Q. 'Malignant' pleural effusion with abdominal gossypiboma. Thorax. 2018 Oct;73(10):992-993. doi: 10.1136/thoraxjnl-2018-211599. Epub 2018 Apr 5. PMID: 29622690.

Sri Lanka

Abeygunasekera AM, Fathiehu F, Weerasiri P. Gossypiboma. Ceylon Med J. 2009 Sep;54(3):98-9. doi: 10.4038/cmj.v54i3.1206. PMID: 19999793.

Ireland

Corrigan S, Kay A, O'Byrne K, Slattery D, Sheehan S, McDonald N, Smyth D, Mealy K, Cromie S. A Socio-Technical Exploration for Reducing & Mitigating the Risk of Retained Foreign Objects. Int J Environ Res Public Health. 2018 Apr 10;15(4):714. doi: 10.3390/ijerph15040714. PMID: 29642646; PMCID: PMC5923756.

Turkey

Bakan S, Kandemirli SG, Kuyumcu G, Ersen E, Tutar O. Intrathoracic gossypiboma after spinal operation. Ann Thorac Surg. 2015 Feb;99(2):e37-9. doi: 10.1016/j.athoracsur.2014.11.015. PMID: 25639442.

Yildirim S, Tarim A, Nursal TZ, Yildirim T, Caliskan K, Torer N, Karagulle E, Noyan T, Moray G, Haberal M. Retained surgical sponge (gossypiboma) after intraabdominal or retroperitoneal surgery: 14 cases treated at a single center. Langenbecks Arch Surg. 2006 Aug;391(4):390-5. doi: 10.1007/s00423-005-0581-4. Epub 2005 Sep 17. PMID: 16170575.

North Korea

Song SY, Hong JW, Yoo WM, Tark KC. Gossypiboma after mandibular contouring surgery. J Craniofac Surg. 2009 Sep;20(5):1607-10. doi: 10.1097/SCS.0b013e3181b14761. PMID: 19816308.

Senegal

Retained surgical sponge after laparotomy : Discussion about 8 cases

January 2012. [Surgical Chronicles](https://www.researchgate.net/journal/1108-5002_Surgical_Chronicles) 17(2):79-8

Ghana

[Intestinal obstruction caused by retained surgical sponge: two case reports](https://www.mendeley.com/catalogue/40320d67-e951-37ea-86e8-3d0463937ce5)

Adu-Aryee N., Asumanu E. Naaeder S.

Ghana Medical Journal (2006)

Ethiopia

Berhanu N. Alemu, Abraham G. Tiruneh. Gossypiboma: Case Series and Literature Review. Ethiop J Health Sci.2020;30(1):147.doi:http:// dx.doi.org/ 10.4314/ejhs.v30i1.19

Nigeria

Ukwenya, A. Y., Dogo Pm, A. Ahmed and P. Nmadu. “The retained surgical sponge following laparotomy; forgotten atsurgery, often forgotten at diagnosis. Our experience.” (2008).

Kenya

Gossypiboma of the Abdomen and Pelvis; A Recurring Error

Gilbert Maranya, Heltam Maganga, Bernard Mwero. Annals of African surgery.2017

https://doi.org/10.4314/aas.v14i1.9

Germany

[Migration of a retained intra-abdominal foreign body into the colon](https://www.mendeley.com/catalogue/5a26bb47-4c1d-3d84-9fc0-5193556fce42)

Reichelt A., Buchholz G., Schülke C.

Der Chirurg; Zeitschrift fur alle Gebiete der operativen Medizen (2011)

Poland

Szymocha M, Pacan M, Anufrowicz M, Jurek T, Rorat M. Leaving a foreign object in the body of a patient during abdominal surgery: still a current problem. Pol Przegl Chir. 2019 May 15;91(6):35-40. doi: 10.5604/01.3001.0013.2024. PMID: 31849358.

 Saudi Arabia

-M. Ezzedien Rabie, Mohammad Hassan Hosni, Alaa Al Safty, Manea Al Jarallah, Fadel Hussain Ghaleb,

Gossypiboma revisited: A never ending issue,

International Journal of Surgery Case Reports, Volume 19, 2016,Pages 87-91.

-A[na Luisa Cavaco](https://midwifery.pulsusconference.com/2019/speaker/ana-luisa-cavaco-national-guard-heath-affairs-ksa).National Guard Health Affairs, KSA Annual Congress onMidwifery & Nurse Practitioners. Abstract *Title: Quality improvement project- Reducing the Swab retention during vaginal delivery*

Thailand

[Transmural migration of a retained surgical sponge into the intestinal lumen:](https://www.mendeley.com/catalogue/22f4f6b1-1533-39b6-a25c-909e8cfd91b9)

[Wattanasirichaigoon S.](https://www.mendeley.com/authors/6701428219)

Journal of the Medical Association of Thailand (1996)

*Kosovo*

Zejnullahu VA, Bicaj BX, Zejnullahu VA, Hamza AR. Retained Surgical Foreign Bodies after Surgery. Open Access Maced J Med Sci. 2017 Mar 15;5(1):97-100. doi: 10.3889/oamjms.2017.005. Epub 2017 Jan 5. PMID: 28293325; PMCID: PMC5320916.

*Togo*

Tchangaiet al. Patient Safety in Surgery (2017) 11:25 DOI 10.1186/s13037-017-0140-2

Iran study

Zarenezhad M, Gholamzadeh S, Hedjazi A, Soltani K, Gharehdaghi J, Ghadipasha M, Hosseini SM, Zare A. Three years evaluation of retained foreign bodies after surgery in Iran. Ann Med Surg (Lond). 2017 Jan 25;15:22-25. doi: 10.1016/j.amsu.2017.01.019. PMID: 28217303; PMCID: PMC5302138.

Japan

Kondo T, Murayama A. Two Pelvic Masses. N Engl J Med. 2018 Feb 22;378(8):752. doi: 10.1056/NEJMicm1708836. PMID: 29466155.

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