

Exploring risk, antecedents and human costs of living with a retained surgical item: A narrative synthesis of Australian case law 1981–2018

Supplementary materials

Supplementary material S1: Summary of legislative requirements for private and day hospitals to provide patient admitted data

Jurisdiction	Facilities licensed	Stated reporting requirement*	Data provided to DoHA**
New South Wales (NSW)	- private hospitals - day facilities In addition, there are 18 prescribed classes of private health facilities.	Required under legislation: - adverse events - root cause analysis - regular audit - admitted patient collection.	No
Victoria (VIC)	- private hospitals - day facilities	Required under legislation: - self-audit tool - episode level data - admitted patient collection.	No
Queensland (QLD)	- private hospitals - day facilities	Required under legislation: - sentinel events, including retained surgical items - root cause analysis - adverse outcome data on six-monthly basis - self-audit tool - admitted patient collection.	Informally
South Australia (SA)	private hospitals, excluding day facilities	Provided voluntarily: provision of documents for inspections.	No
Western Australia (WA)	- private hospitals - day facilities, A–D - private nursing posts - private psychiatric nursing hostels - private nursing homes	Required under legislation: - sentinel events, including retained surgical items - root cause analysis - mortality review - in-patient statistics.	Informally
Tasmania (TAS)	- private hospitals - day facilities	Provided voluntarily: nil.	No
Northern Territory (NT)	private hospitals, including day hospitals	Provided voluntarily: unknown.	No
Australian Capital Territory (ACT)	health care facilities, including public, private and day hospitals	Provided voluntarily: - notifiable incidents - annual report.	

Table data organised by state and territory jurisdiction.¹

DoHA = Department of Health and Aging, Australia

* Across Australian states and territories, the basis on which private hospitals provide admitted patient data is either that data provision is required by legislation or data provision is provided voluntarily.

** No jurisdiction has a formal arrangement in place with DoHA to provide DoHA with updates to licence details for private hospitals and day hospitals. Informal arrangements operate for two jurisdictions.

Supplementary material S2: Search strategy parameters

General parameters: date of publication limited to 1986–2018, searches limited to Australian case law, language restricted to English.

Data bases		Other sources	Search terms
Part 1	- Coroner court websites in all jurisdictions - ACT – www.courts.act.gov.au/magistrates/courts2/coroners_court/selected-findings - NSW – www.coroners.justice.nsw.gov.au/Pages/findings.aspx - NT – www.justice.nt.gov.au/courts/coroners-decisions - QLD – www.courts.qld.gov.au/courts/coroners-court/findings - SA – www.courts.sa.gov.au/CoronersFindings/Pages/All-Findings.aspx - TAS – www.magistratescourt.tas.gov.au/about_us/coroners/coronial_findings - VIC – www.coronerscourt.vic.gov.au/home/coroners+written+findings - WA – www.coronerscourt.wa.gov.au - Health practitioner tribunal websites in all jurisdictions - ACT Civil and Administrative Tribunal – www.acat.act.gov.au - NSW Civil and Administrative Tribunal – www.ncat.gov.au - NT Civil and Administrative Tribunal – www.ntcat.nt.gov.au - QLD Civil and Administrative Tribunal – www.qcat.qld.gov.au - SA Health Practitioners Tribunal – www.healthpractitionertribunal.sa.gov.au - TAS Health Practitioners Tribunal – www.healthpractitionertribunal.tas.gov.au - VIC Civil and Administrative Tribunal – www.vcat.gov.au - WA State Administrative Tribunal – www.sat.justice.wa.gov.au - AHPRA and national boards panel hearings – www.ahpra.gov.au	- AIHW notifications contained in the AIHW Private and Public Sector Medical Indemnity Claims Report in Australia (initially only the last 5 reports were checked) NSW Clinical Excellence Commission and other state bodies National Health Practitioner Ombudsman and Privacy Commissioner Factiva for news articles on incidents - Insurance claims and other data held by medical insurers - Medical Incident Management Reports (IMMS in NSW, and similar reporting agencies in other Australian jurisdictions) - Relevant policies and guidelines for anecdotal evidence (e.g. see the Australian Commission on Safety and Quality in Health Care)	Five categories of search terms are detailed below with draft terms. Terms within and across these categories were searched solely or in combination using Boolean logic; with different terms used, as appropriate, for research questions. Truncators and proximity operators were used as required. Bolded terms indicate starting point to generate initial broad sample. Doctor Surgeon Doctor Physician Health practitioner Nurse Nursing staff Theatre staff Hospital Medical practitioner Health care professional Health institution Medical negligence Medical negligence Clinical negligence Medical malpractice Negligence Duty of care Adverse event Medical error Res ipsa loquitur Retained surgical instrument RSI Retained instrument Surgical sponge Sponge Retained foreign object Retained foreign bod* Surgical mesh Mesh
Part 2	Databases - LexisNexis - AustIII - CCH IntelliConnect - Westlaw (AU) - Google Scholar		

Supplementary material S3: Brief descriptions of key databases and sources searched

[AHPRA](#): The Australian Health Practitioner Regulation Agency (AHPRA) is the organisation responsible for the implementation of the National Registration and Accreditation Scheme for health professions across Australia. AHPRA works with 15 national health practitioner boards whose primary role is to protect the public. The boards relevant to this study include the Nursing and Midwifery Board of Australia and the Medical Board of Australia.

[AustLII](#): The Australasian Legal Information Institute (AustLII) is a joint facility of the University of Technology Sydney (UTS) and the University of New South Wales (UNSW) faculties of law and is Australia's most popular online free-access resource for Australasian legal information, with over 700 000 hits daily.

[LexisNexis](#): LexisNexis is a corporation providing computer-assisted legal research (CALR) that pioneered the electronic accessibility of legal and journalistic documents. The company has the world's largest electronic database for legal and public-records related information.

[CCH IntelliConnect \(Legal\)](#): CCH IntelliConnect offers streamlined legal and regulatory research, analysis and workflows for legal professionals, law firms, general counsel offices and corporate legal departments to assist with transparent, data-driven decision-making.

[Westlaw \(AU\)](#): Westlaw maintains a comprehensive library of resources in Australia to expedite searching by combining industry-leading legal expertise and the latest in smart technology.

Supplementary material S4: Sample search phrases used in LexisNexis

Search strings:

1. ("left in" OR retain OR retained OR "leave in" OR "forgot to remove") AND (inadvertent OR error OR miscount) AND (surgery OR surgeon) AND cavity
2. "failure to remove" AND surgery
3. "foreign body" and surgery
4. "foreign object" OR "foreign body" AND remove AND surgery OR operat*
5. "left in" OR retain OR retained OR "leave in" OR "forgot to remove" AND perioperative
6. "medical negligence" AND surgery AND retained
7. "res ipsa loquitur" AND surgery AND "medical negligence"
8. remove AND surgery AND error OR mistake OR accident AND "foreign body" OR "foreign object*" OR fragment OR instrument OR tool OR device OR sponge OR screw OR swab OR pin OR clip OR clamp OR tweezer OR "electrosurgical adapter" OR forceps OR scissor OR tip OR tube OR tubing OR "ultrasound tissue disruptor" OR bulb OR "laser guide" OR "guide wire" OR "guide-wire"
9. surgery OR surgical OR operat* AND retain* OR unretriev* OR forgot

Supplementary material S5: Data extraction for case law review

A standardised template (coding framework) was developed to guide data extraction of key features and findings of the cases for consideration in the analytical phase of the study and, in particular, features identified in the literature as being associated with retained surgical item events. Key features and findings extracted included:

- general case note: facts, issues and decision
- characteristics of patient (age, sex, location (rural/regional/urban), ethnicity, indigenous, non-English speaking, obesity status)
- characteristics of hospital (public/private)
- characteristics of personnel (junior/senior, nurse/surgeon)
- characteristics of operation (type, location of operation, date)
- item retained (e.g. sponge, raytex gauze swab, instrument, consumable item)
- reason given for retention of item (e.g. risk factors such as change in nursing personnel during surgery, excessive loss of blood, lack of a complete count of sponges and other surgical items, fatigue in the surgery team due to the lengthiness or lateness of the operation, urgency of the surgery, obesity of the patient, unexpected intra-operative developments, the involvement of multiple surgery teams, performance of more than one major procedure simultaneously)
- where retained item was left in patient (e.g. abdomen/pelvis, thorax, vagina, spinal cord, face, brain, extremity)
- when/how retained item was detected (e.g. number of days after the operation – range: day of surgery to >six years)
- was there disclosure of the adverse event to patient? When? By whom?
- patient outcome (e.g. death, readmission to hospital, prolonged hospital stay, sepsis/infection, fistula or small bowel obstruction, visceral perforation)
- type of hearing (e.g. civil/disciplinary/coronial)
- category of legal action (e.g. negligence, nervous shock, breach of contract, employment law)
- nature of hearing (e.g. procedural, first instance decision/trial, appeal)
- nature of defendant (nurse/doctor/hospital)
- nature of plaintiff (patient/relatives seeking compensation)
- legal outcome and decision, and rationale for decision
- amount of compensation paid and defence costs
- types of harm for which compensation was awarded (e.g. loss of income, cost of care, future medical costs, psychosocial damage)

Supplementary material S6: Summary of findings table (detailed)

Case citation [date]	Type of case	Date of retention (date of surgery)	Date of discoverability (of retained item)	Type of surgery (original)	Item(s) retained	Pathway to discovery	Antecedents	Factors and judges' ruling	Long term impacts/ consequences
<i>Elliot v Bickerstaff</i> [1999] NSWCA 453 ²	Civil appeal from a trial verdict	13 Jun 1991	Exact detail on date of discovery missing from record; however, noted from record 'it was necessary for the respondent to undergo further surgery for removal of the sponge about six weeks later'.	Total hysterectomy and colpo-suspension	Surgical sponge [Author note: Final count correct – communicated and recorded.]	All sponges and swabs accounted for [count correct] at the end of surgery on 13 June 1991. 'Physical problems afflicting the respondent led to discovery of the sponge...'	Trial judge inferred that 'there was a miscount or error by the theatre sister [i.e. operating room nurse] or a nurse subservient to her which resulted in unfounded assurances being given to the surgeon'.	The patient could not rely upon the maxim <i>res ipsa loquitur</i> . The appellant surgeon should not have been found liable as he did not breach his duty of care to his patient.	Item unintentionally retained for six weeks. Patient was left with a 'disfiguring scar from second operation and ongoing physical and psychiatric problems'.
<i>Gaynor v Milton</i> [8] Ulladulla Hospital [and two honorary staff doctors] (Unreported, Supreme Court of New South Wales Court of Appeal, Hope JA, Glass JA and Mahoney JA, 5 November 1981) ³	Civil appeal (procedural) – Appeal against the case being taken from the jury	10 Jun 1975	Exact detail missing from record; however, record indicates operating room staff knew that missing piece of forceps was there before the operation was concluded.	Appendicectomy	Piece of forceps (about ½ inch) broken off in course of operation and left behind 'for reasons not explained'.	Operating room staff were aware the forceps had broken and decided to close the patient, check the x-ray, and remove the retained piece later [rationale not provided in record].	Exact detail missing from record. [Author note: Exact detail missing from record on date, if any, of subsequent operation to remove retained item.]	Appeal against first defendant (the hospital) dismissed. There must be a new trial against the 2nd and 3rd defendants (the surgeons); the plaintiff (patient) was entitled to have the case submitted to the jury. 'The doctrine [of <i>res ipsa loquitur</i>] will not be in applicable.	[Author note: Exact detail missing from record to estimate how long item unintentionally retained.] [Author note: Detail missing from record on long-term impacts and consequences.]
<i>Hughes v Minister for Health in his capacity as Board of East Pilbara Health Service</i> (Unreported, Supreme Court of Western Australia, Malcolm CJ, Pidgeon and Steytler JJ, 16 April 1999, 20 April 1999) ⁴	Civil action (procedural) – Appeal against dismissal of application for permission to commence an action outside of limitation period	20 Dec 1994 – stitches holding drainage tubes in place were removed [Author note: Patient re-admitted to hospital on 2 Dec 1994 and discharged on 4 Dec 1994. Patient re-admitted to hospital on 15 Dec 1994 and discharged on 22 Dec 1994. Exact detail missing from record on actual date of surgery to insert drainage tubes]	21/22 Dec 1994 – missing left draining tube discovered. Patient discharged 22 Dec 1994. 19 Jan 1995 – missing left drainage tube confirmed retained in patient via scans. Time to confirmed discovery – 28 days. [Author note: Actually 'missing' for about 35 days.]	Insertion of two drainage tubes to drain fluid build-up. [Author note: Date unclear]. Removal of stitches holding tubes in place (20 Dec 1994). Removal of right drainage tube (22 Dec 1994). Removal of retained left drainage tube 6 Feb 1995. [Author note: removal approx. two more weeks after discovery to removal]	Left drainage tube [Author note: When stitches removed, tubes were left protruding by 20 mm and covered with two dressings.]	Patient suffered severe central abdominal pain, nausea, vomiting, constipation and fatigue and was unable to work and was referred. He underwent x-rays and an ultrasound scan which showed the missing drainage tube.	No additional details in record. [Author note: Patient had four operations in Sep 1993, Jan 1994, May 1994 and Nov 1994 for repair of recurrent umbilical hernia prior to surgery to insert drainage tubes for wound seroma developed in previous surgery.]	'...not a case for application of... <i>res ipsa loquitur</i> ' Appeal allowed – patient granted permission (leave) to commence an action in terms of a proposed amended statement of claim. There was discussion about the contribution of the retained item to the patient's symptoms with the judge stating, '[t]he exclusion of the drain as the "prime cause for the excessive symptoms [the patient] now has" leaves the inference open that it was a cause'.	Item unintentionally retained for approx. 46 days. Continued to suffer from abdominal pain, fatigue and loss of enjoyment of life. Also claimed damages for loss of his earning capacity as a sign writer and painter and for medical and traveling expenses. [Author note: Patient underwent subsequent surgery on 6 Feb 1995 at Bentley Hospital to have missing tube removed.]
<i>Ives v Australian Capital Territory and Anor</i> BC9506456 (Unreported, Supreme Court of the Australian Capital Territory, Higgins J, 20 October 1995, 8 December 1995) ⁵ <i>The Australian Capital Territory v Ives</i> (Unreported, Federal Court of Australia, Gallop, Wilcox and Finn JJ, 16 April 1996, 26 July 1996) ⁶	Civil action (procedural) – permission to commence action outside of limitation period	On or around 12 Mar 1974	11 Oct 1994 Time to discovery approx. 20 years, 5 months	Securing, resecuring or removing a Redivac™ draining tube in connection with a hysterectomy	Straight surgical suture needle [Author note: Count correct implied.]	Patient underwent a chest and spinal x-ray for an unrelated matter which revealed the presence of a metallic object in her heart.	Labelled an emergency; however, surgery was performed the day after admission so surgeon considered that it would not have been a 'rushed' operation.	Extension of time for filing claim allowed in part. [Author note: A later application by the defendants for permission to appeal to the Full Court against this judgement approving extension to file was dismissed.]	Medical opinion was that the needle should be left undisturbed but scanned annually. Since learning of the needle in her heart, the patient has become depressed and anxious.

Case citation [date]	Type of case	Date of retention (date of surgery)	Date of discoverability (of retained item)	Type of surgery (original)	Item(s) retained	Pathway to discovery	Antecedents	Factors and judges' ruling	Long term impacts/ consequences
<i>Kenjar v ACT</i> BC201402661 (Unreported, Supreme Court of the Australian Capital Territory, Master Mossop J, 17 April 2014) ⁴	Civil action (procedural) – application to amend claim	26 Aug 2008 (k-wire insertion) 16 Sep 2008 (k-wire removal)	2 Oct 2008 Note: x-ray taken on date of surgery found to show k-wire fragment present.	Open reduction and multiple k-wire fixation of his right hand. [Author note: Subsequent surgery to remove k-wires on 16 September 2008.]	Piece of k-wire	Plaintiff was reviewed on 23 September. Presented at the hospital on 30 Sept 2008 with pain and swelling, necrotic skin and abscess in his right hand. Procedure undertaken to excise necrotic tissue and wash the abscess.	Exact detail missing from record.	Application dismissed as amendment was not supported by expert evidence.	Pain and swelling; subsequent procedure to remove necrotic skin and wash abscess that had formed. Claimed to have contracted a <i>Staphylococcus aureus</i> infection and suffered permanent injury to his right hand.
<i>Langley v Glandore Pty Ltd</i> (in liq) [1997] QCA 342 ⁸	Civil appeal from negligence verdict against surgeons	22 Feb 1990	Exact detail missing from record; however, time to discovery described as 'some ten months later'.	Total abdominal hysterectomy	Sponge [Author note: Correct count recorded. Nurse admitted to a counting error at trial.]	Painful symptoms manifested themselves, leading to another operation performed some ten months later.	None of the witnesses had a recollection of anything untoward occurring in the course of the operation.	Judge indicated incorrect count performed by nurses. Appeal upheld – surgeons to recover from hospital in respect of damages owing to plaintiff.	Painful symptoms. From law text book – 'After the operation it became apparent, as a result of certain symptoms suffered by the woman, that a surgical sponge had been left inside her abdomen. The painful symptoms manifesting this fact were such that she was required to undergo a further operation some ten months after the first operation to have that sponge removed'.
<i>Miller v Broadbent</i> BC9905589 (Unreported, Supreme Court of Queensland, Muir J, 6 August 1999, 12 August 1999) ⁹	Civil action (procedural) – permission to commence action outside of limitation period	Oct 1992	5 June 1996	Laparoscopy stomach banding operation	Silicon tubing	Exploratory surgery in abdominal cavity due to ongoing abdominal pain. 'On 5 June 1996 a piece of silicon tubing was discovered in and removed from the applicant's abdominal cavity in the course of exploratory surgery.'	Exact detail missing from record.	Judge agreed to hear submissions.	Abdominal pain; underwent various investigative procedures which failed to reveal source of pain.
<i>O'Hagan v Sakker</i> BC201140099 (Unreported, New South Wales District Court, Levy SC DCJ, 24 February, 15 April, 13, 27 May, 11 July 2011) ¹⁰	Civil action (procedural) – permission to commence action outside of limitation period	10 Aug 1992	2 Oct 2007 [Author note: X-ray in 2003 – later examination of that film (in 2010) revealed presence of pack in abdomen; patient not informed in 2003; fall in 2007 and subsequent x-ray for abdominal pain revealed intra-abdominal foreign body.]	Hemi-colectomy / sigmoid colectomy	Surgical pack [Author note: Correct count implied.] [Author note: pack removed 02 Oct 2007; although link to specific previous surgery not confirmed with patient until Sept 2010.]	Patient suffered a fall and several days later was admitted to hospital suffering from abdominal pain, resulting in an abdominal x-ray which revealed the presence of the retained surgical item.	Exact detail missing from record.	Retained surgical pack had been overlooked and left behind following the procedure. Extension of time for filing claim allowed. '... case based on res ipsa loquitur ... unatenable.'	Abdominal pain/cramping, fevers and loss of bowel control; psychosocial problems stemming from the retention of the pack, for which patient obtained psychiatric treatment; subsequent to pack removal patient preoccupied with deleterious effects on her health from retained pack and sought psychiatric treatment.
<i>Smith v Marcus</i> BC8902456 (Unreported, Supreme Court of New South Wales, Studdert J, 6 March 1989) ¹¹	Civil action (procedural) – permission to commence action outside of limitation period	24 Nov 1977	24 Nov 1987	Hysterectomy and insertion of drainage tube	Redivac™ drainage tube 'measuring 125 mm in length' [Author note: Detail on date of original drain removal procedure missing from record.] 'On the 24 November, 1987, [a surgeon] explored her lower abdominal tranverse wound and removed the Redivac™ drain, measuring 125 mm in length.'	Patient suffered persistent pain and discomfort in the pelvic area. She underwent a series of tests over a number of years including a bowel x-ray, blood tests, medical examinations, an abdominal ultrasound. Retained surgical item was discovered by her doctor's further examination of IVP plates (not mentioned in the radiologists' report).	Exact detail missing from record. The plaintiff gave evidence of 'her recollection of a comment made by the first defendant [surgeon] when the tube was being removed to the effect that he "thought the tube was longer than that"'. Patient returned to surgeon for follow up; internal exam performed, patient informed that 'nothing was wrong'.	Extension of time for filing claim allowed	Pain and discomfort in the stomach and pelvic area, exacerbated by walking, over a period of ten years with multiple visits to many different health professionals. Advised to 'eat bran' and 'no fat diet'.

Case citation [date]	Type of case	Date of retention (date of surgery)	Date of discoverability (of retained item)	Type of surgery (original)	Item(s) retained	Pathway to discovery	Antecedents	Factors and judges' ruling	Long term impacts/ consequences
Record of <i>Investigation into Death (without inquest) of James Stirling McKinlay</i> , 2013 TASC 142 ¹²	Coronial investigation	02 Jun 2012 ‘Then operating room nurse’s report records that six small packs and one large pack were left in situ. It also records that 40 packs were used and the final count of packs removed is 33.’ Patient transferred to Royal Hobart Hospital later that day.	14 June 2012	Follow-up surgery to address internal bleeding following a pancreaticoduodenectomy (Whipples procedure)	Surgical pack [Author note: All intentionally retained surgical packs were not removed in subsequent surgery – one left behind.]	Additional surgeries undertaken (4 and 11 Jun). During the surgery at Royal Hobart Hospital (RHH) on 4 June 2012, six packs were removed. A plain x-ray taken on 6 June 2012 shows the retained pack but it was not reported by the radiologist reading the film or seen by the managing doctors. A CT scan of the abdomen on 7 Jun again shows the retained pack which was not noted. Between then and 14 Jun 2012 Mr Turner became aware of the possible retention of one surgical pack in Mr McKinlay’s abdomen. During another surgical procedure on 14 Jun 2012 a tightly compressed pack was discovered away from the site of the other packs and was removed.	Transferred between hospitals with an incomplete medical record and a lack of clear communication of the number of packs left in situ on the handover. ‘Although the LGH nursing records of retained packs were correct, the medical record was incomplete. Mr McKinley was transferred to the RHH with a relatively brief accompanying letter. I have no doubt that there was considerable discussion through numerous phone calls but examination of the medical records reveals no clear formal communication of the number of packs left in situ on the handover. Patient ‘was extremely ill and being treated in circumstances of emergency’.	‘It is easy to appreciate how the retained pack might have been missed both on the handover and the X-ray in this case. He was extremely ill and being treated in circumstances of emergency.’ Death occurred as a result of a fungal infection following major abdominal surgery for cancer. No other contribution to his death.	Retained pack did not contribute to death. Both hospitals were recommended to review their procedures with regards to retained packs.

Supplementary material S7: Pathway to discovery, antecedents, long term impacts

Case citation [date, state]	Pathway to discovery	Antecedents	Factors and judges' ruling	Long term impacts/consequences of living with a retained surgical item (human costs)
<i>Elliott v Bickerstaff</i> [1999, ACT] ²	All sponges and swabs accounted for [count correct] at the end of surgery on 13 Jun 1991. 'Physical problems afflicting the respondent led to discovery of the sponge...'	Trial judge inferred that 'there was a miscount or error by the theatre sister [i.e. operating room nurse] or a nurse subservient to her which resulted in unfounded assurances being given to the surgeon'.	The patient could not rely upon the maxim <i>res ipsa loquitur</i> . The appellant surgeon should not have been found liable as he did not breach his duty of care to his patient.	Item unintentionally retained for six weeks. Patient was left with a 'disfiguring scar from second operation and ongoing physical and psychiatric problems.
<i>Gaynor v Milton [&] Ulladulla Hospital</i> [1981, NSW] ³	Operating room staff were aware the forceps had broken and decided to close the patient, check the x-ray, and remove the retained piece later. [Author note: Rationale not provided in record.]	Exact detail missing from record. [Author note: Exact detail missing from record on date, if any, of subsequent operation to remove retained item.]	Appeal against first defendant (the hospital) dismissed. There must be a new trial against the 2 nd and 3 rd defendants (the surgeons); the plaintiff (patient) was entitled to have the case submitted to the jury. 'The doctrine [of <i>res ipsa loquitur</i>] will not be in applicable.'	Exact detail missing from record to estimate how long item unintentionally retained. Detail missing from record on long term impacts and consequences.
<i>Hughes v Minister for Health East Pilbara Health Service</i> [1999, WA] ⁴	Patient suffered severe central abdominal pain, nausea, vomiting, constipation and fatigue and was unable to work and was referred. He underwent x-rays and an ultrasound scan which showed the missing drainage tube.	No additional details in record. [Author note: Patient had four operations in Sep 1993, Jan 1994, May 1994 and Nov 1994 for repair of recurrent umbilical hernia prior to surgery to insert drainage tubes for wound seroma developed in previous surgery.]	'...not a case for application of... <i>res ipsa loquitur</i> ' Appeal allowed – patient granted permission (leave) to commence an action in terms of a proposed amended statement of claim. There was discussion about the contribution of the retained item to the patient's symptoms with the judge stating, '[t]he exclusion of the drain as the "prime cause for the excessive symptoms [the patient] now has" leaves the inference open that it was a cause'.	Item unintentionally retained for approximately 46 days. Patient continued to suffer from abdominal pain, fatigue and loss of enjoyment of life. Also claimed damages for loss of his earning capacity as a sign writer and painter and for medical and traveling expenses. [Author note: Patient underwent subsequent surgery on 6 Feb 1995 at Bentley Hospital to have missing tube removed.]
<i>Ives v Australian Capital Territory and Anor</i> [1995, ACT] ⁵ <i>The Australian Capital Territory v Ives</i> [1996, ACT] ⁶	Patient underwent a chest and spinal x-ray for an unrelated matter which revealed the presence of a metallic object in her heart.	Labelled an emergency; however, surgery was performed the day after admission so surgeon considered that it would not have been a 'rushed' operation.	Extension of time for filing claim allowed in part [Author note: A later application by the defendants for permission to appeal to the Full Court against this judgement approving extension to file was dismissed.]	Medical opinion was that the needle should be left undisturbed but scanned annually. Since learning of the needle in her heart, the patient has become depressed and anxious.
<i>Kenjar v ACT</i> [2014, ACT] ⁷	Plaintiff was reviewed on 23 Sep. Presented at the hospital on 30 Sep 2008 with pain and swelling, necrotic skin and abscess in his right hand. Procedure undertaken to excise necrotic tissue and wash the abscess.	Exact detail missing from record.	Application dismissed as amendment was not supported by expert evidence.	Pain and swelling; subsequent procedure to remove necrotic skin and wash abscess that had formed. Claimed to have contracted a <i>Staphylococcus aureus</i> infection and suffered permanent injury to his right hand.
<i>Langley v Glandore Pty Ltd</i> [1997, QLD] ⁸	Painful symptoms manifested themselves, leading to another operation performed some ten months later.	None of the witnesses had a recollection of anything untoward occurring in the course of the operation.	Judge indicated incorrect count performed by nurses. Appeal upheld – surgeons to recover from hospital in respect of damages owing to plaintiff.	Painful symptoms. From law textbook description of case – 'After the operation it became apparent, as a result of certain symptoms suffered by the woman, that a surgical sponge had been left inside her abdomen. The painful symptoms manifesting this fact were such that she was required to undergo a further operation some ten months after the first operation to have that sponge removed.'

Case citation [date, state]	Pathway to discovery	Antecedents	Factors and judges' ruling	Long term impacts/consequences of living with a retained surgical item (human costs)
<i>Miller v Broadbent</i> [1999, QLD] ⁹	Exploratory surgery in abdominal cavity due to ongoing abdominal pain; 'On 5 Jun 1996 a piece of silicon tubing was discovered in and removed from the applicant's abdominal cavity in the course of exploratory surgery'.	Exact detail missing from record.	Judge agreed to hear submissions	Abdominal pain; underwent various investigative procedures which failed to reveal source of pain.
<i>O'Hagan v Sakker</i> [2011, NSW] ¹⁰	Patient suffered a fall and several days later was admitted to hospital suffering from abdominal pain, resulting in an abdominal x-ray which revealed the presence of the retained surgical item.	Exact detail missing from record.	Retained surgical pack had been overlooked and left behind following the procedure. Extension of time for filing claim allowed. '...case based on res ipsa loquitur ...unatenable.'	Abdominal pain/cramping, fevers and loss of bowel control; psychosocial problems stemming from the retention of the pack, for which patient obtained psychiatric treatment; subsequent to pack removal patient preoccupied with deleterious effects on her health from retained pack and sought psychiatric treatment.
<i>Smith v Marcus</i> [1989, NSW] ¹¹	Patient suffered persistent pain and discomfort in the pelvic area. She underwent a series of tests over a number of years including a bowel x-ray, blood tests, medical examinations, an abdominal ultrasound. Retained surgical item was discovered by her doctor's further examination of IVP plates (not mentioned in the radiologists' report).	Exact detail missing from record. The plaintiff gave evidence of 'her recollection of a comment made by the first defendant [surgeon] when the tube was being removed to the effect that he "thought the tube was longer than that"'. Patient returned to surgeon for follow up; internal exam performed; patient informed that 'nothing was wrong'.	Extension of time for filing claim allowed	Pain and discomfort in the stomach and pelvic area, exacerbated by walking, over a period of ten years with multiple visits to many different health professionals. Advised to 'eat bran' and 'no fat diet'
Record of <i>Investigation into Death of James Stirling McKinlay</i> [2013, TAS] ¹²	Additional surgeries undertaken (4 and 11 Jun). During the surgery at Royal Hobart Hospital (RHH) on 4 June 2012, six packs were removed. A plain x-ray taken on 6 June 2012 shows the retained pack but it was not reported by the radiologist reading the film or seen by the managing doctors. A CT scan of the abdomen on 7 Jun again shows the retained pack which was not noted. Between then and 14 Jun 2012 Mr Turner became aware of the possible retention of one surgical pack in Mr McKinlay's abdomen. During another surgical procedure on 14 Jun 2012 a tightly compressed pack was discovered away from the site of the other packs and was removed.	Transferred between hospitals with an incomplete medical record and a lack of clear communication of the number of packs left in situ on the handover. 'Although the LGH nursing records of retained packs were correct, the medical record was incomplete. Mr McKinley was transferred to the RHH with a relatively brief accompanying letter. I have no doubt that there was considerable discussion through numerous phone calls but examination of the medical records reveals no clear formal communication of the number of packs left in situ on the handover. Patient 'was extremely ill and being treated in circumstances of emergency'.	'It is easy to appreciate how the retained pack might have been missed both on the handover and the X-ray in this case. He was extremely ill and being treated in circumstances of emergency.' Death occurred as a result of a fungal infection following major abdominal surgery for cancer. No other contribution to his death.	Retained pack did not contribute to death. Both hospitals were recommended to review their procedures with regards to retained packs.

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5. Ives v. Australian Capital Territory and Anor. (Unreported, Supreme Court of the Australian Capital Territory, Higgins J, 20 October 1995, 8 December 1995).
6. The Australian Capital Territory v. Ives (Unreported, Federal Court of Australia, Gallop, Wilcox and Finn JJ, 16 April 1996, 26 July 1996).
7. Kenjar v. Australian Capital Territory (2014) ACTSC 69.
8. Langley & Warren v. Glandore Pty Ltd & Thomson (1997) QCA 342.
9. Miller v. Broadbent (Unreported, Supreme Court of Queensland, Muir J, 6 August 1999, 12 August 1999).
10. O'Hagan v. Sakker (2011) 12 DCLR (NSW) 329; (2011) NSWDC 60.
11. Smith v. Marcus (Unreported, Supreme Court of New South Wales, Studdert J, 6 March 1989).
12. Record of Investigation into Death (without inquest) of James Stirling McKinlay (Tasmanian Coroners Court 2013, TASCDC 142).