

Wrong site Nephrectomy – Lessons learnt

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Background:

In industrialised countries the major complications during surgical interventions is estimated to be between 3-22%, with a mortality rate between 0.4-0.8 percent ^[1]. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) performed a root cause analysis of 126 cases reported to them in 1999 and found that Surgery on the wrong patient occurred in 13% of cases, the wrong procedure in 11%, and on the wrong body part or site in 76% ^[2]. Philip F, et al reported 38 wrong site procedures in a six year period with one mortality, in 2010 ^[3].

During an elective procedure on 21st of March 2008, a wrong kidney was inadvertently removed in a child. We, as surgeons involved, have studied the chain of systemic and human errors that resulted in this catastrophic error in this article. The details of this incident are available on the Irish Medical Council website, where the entire transcript of the public inquiry into this incident, is available for all to read ^[4]. In preparing this paper we have concentrated on the lessons learnt, especially focussing on prevention of such errors.

Case Report:

A 6.5 year old boy, with a background history of surgery for Anorectal malformation and recurrent urinary tract infections, was seen at the surgical outpatient clinic following a DMSA scan.

His past investigations included a Micturating cystourethrogram (MCUG) very early in life, with reported Left sided grade II reflux. This report was wrong, as the MCUG films showed a Right sided reflux and not Left. During his multiple visits to surgical and

nephrology out patient clinics with recurrent urinary tract infections, this error of incorrect site (left) as indicated on the original MCUG report, got transcribed into several places in his clinical notes and discharge summaries.

When he arrived at the outpatient clinic following his DMSA scan, the surgeon was passed on the information that there was 14% filtration on one kidney. It is not clear how this information was passed on, but due to the preceding notes and letters, an assumption was made that the scarred organ is Left Kidney. He was scheduled for Left Nephrectomy from the out patient clinic. This scheduling involved selecting a date for surgery and entering his details on the Surgical Appointments Diary and filling in an admission card for hospital administration to enter the dates and details into the computerised appointments system. Again all of these documents and the discharge letter reflected that the planned organ for removal is the Left Kidney.

Due to late discharges and subsequent late availability of beds, the child was admitted well after five pm for elective nephrectomy on the following day. At this point, he was admitted by the on-call house officer, who was not familiar with the child's past history. Also due to lack of resources, the child was only accompanied with his clinical notes and not the Xray films, and the admitting house officer fully relied on the written documentation in the clinical notes. He promptly proceeded to consent the child for Left Nephrectomy, without site marking. A site marking policy was lacking in the institution at that point in time. Though parental concerns were raised as to the correctness of the side, these concerns were reassured with the help of incorrect clinical documentation and were not relayed to the consultant the following day.

Preoperative team briefing was not part of the routine at that point in time, and as such the boy was not discussed in detail between the surgical team members. As the regular Surgical Registrar was on holidays, a stand-in registrar was requested to fill-in. As there were two parallel theatres running under the supervision of a single consultant, the team members (Consultant, Registrar and one House Officer) were divided up between the two theatres. When the child arrived for surgery, the parents again queried the correctness of the consent which they have signed the previous day. However, again

due to lack of availability of Xrays, they were falsely reassured based on the clinical documentations, which were all incorrect for several years.

At the time of surgery, though the Xrays were available, due to a late hand-over of responsibility to operate, the Registrar failed to review these Xrays. Relying solely on the documentation, the Registrar proceeded to remove the incorrect healthy kidney. Though the error was recognised once the kidney was removed, auto-transplantation of the organ failed, and the child was left with his diseased kidney.

Thankfully, the child still remains dialysis free, maintaining his renal function on conservative measures, five years later.

Discussion:

Root cause analysis was initially undertaken in large scale within the Aviation industry. Unlike the aviation world where each error is clearly seen within minutes by all bystanders, medical errors must first be reported by the Doctors in charge before it can even be recognised. As medical errors can easily merge into the inevitable end points of illnesses, when the reporting is inadequate, it is difficult to be certain whether a poor outcome was due to systemic or human error, or simply due to the illness itself. Poor reporting, compounded by human need to protect oneself, has led to poor understanding of why such errors occur. However, thanks to the tools from aviation industry in understanding human and systemic errors, institutions such as World Health Organisation are leading the crusade in the prevention of Medical errors.

In 2003 the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) promulgated a Universal protocol for preventing Wrong site, wrong procedure, and wrong person surgery^[2]. This protocol recommends preoperative verification, site marking, and a 'time out' in the operating room. Such tools cannot prevent the original mistake that started the chain of incorrect site documentation that occurred with our

child. However, it would have helped us to identify the error at several points, and thereby prevent the final wrong-site surgery. This is highlighted by several studies, such as that by Philip F, et al, where the wrong-site surgery were noted to be a result of errors in judgement in 85% and due to lack of performing a 'time-out' in 72% of cases ^[3]. These authors also highlight that mix-up of patient medical records, reports and radiographs were the root-cause in a large proportion of errors. The Great-Ormond street report into the wrong-site nephrectomy in our child also highlighted similar findings. Mary R Kwaan et al concluded that current site-verification protocols could only prevent two-thirds of the 25 cases they analysed in 2006 ^[2].

Since the wrong site Nephrectomy which is the subject of this paper the surgical teams at our hospital have made several changes to our practice to avoid such errors. All Xray images are made available at all times with the clinical notes for review. This includes surgical outpatient clinics, wards and operating rooms. Latest technical advances with images being available on all computers through **PACS system** makes this easy and feasible. **Multi-disciplinary team meetings** are common place of late, to encourage further discussion of any proposed major surgical interventions, to enable all involved to revisit the images and reports as a group to avoid individual human errors. **Dual-theatres are totally eliminated**, enabling increased supervision and time for team-briefing for all consultants.

Also, we have developed an institutional **site marking policy**, which insists on reviewing relevant images before proceeding. Also the **consent policy** insists on the consent being obtained by the Surgeon who is to perform the procedure or by his assistant who will be at the surgery. **Team-briefing** has been adopted by all surgical teams to increase communication between members. The '**surgical time-out**' is done by the surgeon just prior to surgery, and must include displaying and reviewing the relevant Xray images with the remainder of the team. Martin A Makary et al have shown that Operating room team briefings can significantly reduce the perceived risk of wrong-site surgery and improve collaboration among personnel ^[5].

It is clear that 'to err is human'. Whether it is reporting an Xray image incorrectly, or failing to review the images preoperatively, such human errors will be hard to avoid with every person every day. There is no panacea against error and studies have shown that in the era of universal protocol, errors still do happen ^[3]. However, we have learnt that a robustly built System can and should support individuals, by focussing them to function as a group and thereby capture these individual errors and decrease the incidence of wrong-site surgeries. Such strong systems are built around a human-factor model, with individual awareness, and may provide the building blocks for error-free surgery in the future.

REFERENCE:

1. Patient safety . World Health Organization Official web site. 2009.
[URL:http://www.who.int/patientssafety/faq_introduction/en/index.html](http://www.who.int/patientssafety/faq_introduction/en/index.html).
2. Incidence, Patterns, and Prevention of Wrong-site Surgery
Mary R. Kwaan, et al
ARCH SURG/VOL 141, APR 2006
3. Wrong-site and Wrong-Patient procedures in the Universal Protocol Era. *Analysis of a Prospective Database of Physician Self-reported Occurrences*
Philip F. Stahel, et al
ARCH SURG/VOL 145 (NO. 10), OCT 2010
4. Transcripts for each day of Inquiry are at:
<http://www.medicalcouncil.ie/News-and-Publications/News/2010/Transcript-of-Fitness-to-Practise-Committee-hearing-held-pursuant-to-Part-8-of-the-Medical-Practitioners-Act-2007---Prof-P-Corbally-Dr-Sri-Paran-Thambipillai.html>
5. Operating Room Briefings and Wrong-Site Surgery. Martin A Makary et al
J Am Coll Surg 2007; 204:236-243.