Establishing a “cold" elective unit for robotic colorectal and urological cancer surgery and regional vascular surgery following the initial COVID-19 surge

Editor
Preparation for the current coronavirus pandemic resulted in the cessation of elective surgery at NHS hospitals\(^1\). Uncertainty exists as to the best way to safely re-introduce elective surgery during this period of increased risk\(^2\). However, a failure to do so will inevitably lead to more patients who experience adverse outcomes, not through COVID-19 itself but as a result of delays to treatment, and potential progression of other conditions such as cancer\(^3\).

Recommendations from the Royal College of Surgeons of England and specialty associations include using “cold" operating sites, screening of patients and staff and responding to fluctuating local resource availability\(^4\).

We report our experience of establishing a “cold" unit for major elective surgery (priority 2 and 3 patients) at Frimley Park Hospital where there is an established robotic surgery programme and tertiary referral services for renal and vascular surgery. Separate pathways were already in place for short-stay procedures.

A self-contained day surgery unit with 16 patient bays (reduced to 10 to enhance social distancing measures), two theatres and a post-operative recovery ward was utilised. Two recovery beds were identified as high dependency beds. All staff had weekly swab testing for coronavirus and were excluded from the main hospital. All patients self-isolated for 14 days prior to admission and had both a coronavirus swab and initially a chest CT until this requirement was removed from national guidance.

Personal protective equipment was used for every patient interaction.

| Table 1 Patient characteristics for colorectal, vascular and urology patients (n = 29). (Four ear, nose and throat patients and one gynaecology patients also went through the pathway) |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| **Age Median (IQR)** | 64 (54-74) |
| **Male n (%)** | 14 (48) |
| **Pathology** | **Colorectal Cancer** 13 | **High Risk Rectal Polyp** 1 | **Renal Cancer** 8 | **Benign Urology** 3 |
| **Operation** | Right hemicolectomy (6) | Low Anterior Resection (4) | Sigmoid Colectomy (3) | Left Hemicolectomy (1) |
| **Urology** | Partial Nephrectomy (6) | Radical Nephrectomy (1) | Simple Nephrectomy (1) | Nephro-ureterectomy (1) |
| **Vascular** | Percutaneous Nephrolithotomy (1) | Femoral-Above Knee Bypass (1) | Femoral-Above Knee Bypass and Femoral Endarterectomy (1) | Right Above Knee Amputation (1) |
| **Access** | Colorectal | Laparoscopic – 9 | Laparoscopic Converted to open – 1 (bulky invasive tumour) | Robotic – 4 (Low Anterior Resections) |
| **Urology** | Robotic – 8 | Laparoscopic – 2 | Endoscopic - 1 |
| **Priority Scores\(^5\)** | **P2** 14 (48) | **P3** 15(52) |
| **Vulnerability Scores\(^5\)** | **V1** 16 (55) | **V2** 13 (45) |
| **Length of Stay (days)** | Colorectal: 3 5 (3-4) | Urology: 1 (1-2) | Vascular: 3 5 (1.5-5.5) |
| **Complications (n)** | Colorectal | Blood transfusion (1) | Atelectasis (1) | Post-op pyrexia (1) |
| | | | | ileus requiring parental nutrition (1) |
| | Urology | Hyponatraemia – conservatively managed (2) | ileus (1) |
| | Vascular | Urinary Tract Infection (1) |
| **Readmissions (n)** | Colorectal | Abdominal bruising and nausea (CT demonstrated no intramuscular haematoma) – 2 day readmission (1) |
| | Urology | Abscess post nephrectomy (for chronically infected kidney with staghorn calculus) requiring radiologically guided percutaneous drain – 5 day readmission (1) |
| | Vascular | Pain from nephrostomy site post percutaneous nephrolithotomy – 2 day readmission (1) |
Pathways were in place for transfer of patients to the main hospital if cross-sectional imaging or intensive care was required. Access was available to clinical laboratory services and blood bank.

The “cold” unit became operational on the 12th May 2020. 34 patients underwent surgery in the unit during the first three weeks (Table 1). There was no evidence of coronavirus transmission. Three patients required readmission to the main hospital. Patient feedback was excellent with 94% of patients who completed the trust inpatient survey rating their care as “excellent”.

The median length of stay was 3.5 days for colorectal surgery. This compares to five days for laparoscopic segmental colonic resection prior to COVID-19. The potential reduction may be explained by the relatively high nurse to patient ratios, high levels of consultant input, and a dedicated department where staff were able to focus on peri-operative care and enhanced recovery without the traditional ward mix of elective and emergency patients.

In COVID planning, the senior trust team had to attempt to mitigate numerous risks in instigating a “cold” elective pathway and considered the use of independent sector providers. The proximity to acute services and the fact that there were insufficient critical-care staff for an off-site “mini” ITU led to the conclusion that an isolated “cold bubble within a contaminated hospital” was the best option for our individual circumstances. Working in a contained unit proved to be efficient and staff morale was high. This model has the ability to flex and in the event of further “surges” can be suspended and rapidly re-implemented.

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