Conservative Management of Appendicitis following Laparoscopic Live Donor Nephrectomy

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ABSTRACT

Appendicitis following a live laparoscopic donor nephrectomy (LLDN) is rare complication and can present a diagnostic challenge. LLDN patients represent a unique group of patients for which there is limited research. Preventing a second operation and preserving residual kidney function are important considerations. Herein we present a case of appendicitis 9 days post hand assisted laparoscopic donor nephrectomy which presented as right sided abdominal pain and was confirmed on computed tomography. It was successfully managed through a conservative approach of intravenous antibiotics and fluid. This case demonstrated successful conservative management of appendicitis post LLDN and is the first reported case of conservative management in LLDN patients and only the second reported case of appendicitis post LLDN.

KEY WORDS: Live laparoscopic donor nephrectomy; Appendicitis; Abdominal pain

INTRODUCTION

Kidney transplantation provides the best treatment of end stage renal disease (ESRD) as compared to dialysis, with a reduced cost, lower death rate and improved quality of life [1, 2]. Live donor transplantation is now known to provide better graft function and increased survival in comparison to cadaveric transplantation [3-5]. Despite the benefits of live kidneys, historically, there have been issues in obtaining live donor's due the risk it exposes to an otherwise healthy individual. Until 1995, when the first live laparoscopic donor nephrectomy (LLDN) was carried out by Ratner *et al.* open donor nephrectomy was the procedure used [6]. LLDN provided a procedure which had reduced associated complications, a shorter recovery time and was less invasive than open surgery.

LLDN is now the procedure of choice for renal living donation, and it has helped contribute towards an increase in the number of live donors. Known and reported complications of LLDN are haemorrhage, visceral damage, chylous ascites, and post-operative ileus [7]. Appendicitis is rarer complication of LLDN. These complications are, however, much rarer when compared to open nephrectomy.

Initial management of appendicitis is resuscitation of the patient, intravenous antibiotics, and appropriate analgesia. The definitive management can be either surgical or conservative. Surgical management is appendicectomy, which is the most common definitive treatment used worldwide for appendicitis. Laparoscopic appendicectomy is associated with an approximate 10% complication rate [8]. Conservative management is reserved for uncomplicated appendicitis and uses antibiotics and IV fluids. It has become a more popular management technique in recent years and has been shown to be highly effective in the appropriate patients [9].

LLDN patients represent a unique patient group, for which there is limited research,

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and therefore choosing the correct treatment option is important. Conservative management provides a good alternative to surgical management and would reduce the need for further surgical intervention in an otherwise healthy individual.

There is only one other case of acute appendicitis post live kidney donation reported in British literature for which surgical management was chosen. Conservative management of appendicitis in this patient group has not been reported before.

Herein we describe a case of acute appendicitis post LLDN which was treated conservatively.

CASE PRESENTATION

A 36-year-old female was admitted for a hand assisted laparoscopic donor nephrectomy. Her background included a BMI of 28, ex-smoker, previous glandular fever and she was on the contraceptive pill (Cerelle). She was an otherwise healthy individual and took no regular medications. The operation passed without any complications with no excessive bleeding or damage incurred. She had an ultrasound abdomen on post-operative day (POD) 2 due to tenderness at the wound site. This showed no evidence of collection or bleeding, and her blood results were within normal range. Her catheter was removed on POD 1 and her abdominal drain on POD 3. She was discharged on POD 3 with no concerns.

She re-presented to hospital on POD 9 with 'excruciating' sharp, constant right sided abdominal pain. There was no associated fever, no anorexia or vomiting with no signs of systemic infection and normal bowel habits. On examination her abdomen was soft with tenderness in her right iliac fossa (RIF) and suprapubic region with maximum tenderness at McBurney's point and she was Rovsing's sign positive. There were no masses felt and the surgical scar dressing was dry. On admission she had a raised white cell count of 12.2. Her observations were stable with a normal temperature, blood pressure and heart rate. A diagnostic abdominal ultrasound scan was unable to visualise the appendix due to overlying bowel gas and tenderness in the RIF. It was otherwise normal.

An abdominal computed tomography (CT) scan showed appendicitis with no evidence of collection or perforation. There was a small volume of fluid in the left retroperitoneal space and an anterior abdominal wall fluid collection. Initial treatment was intravenous antibiotics with adequate analgesia and fluid.

After consideration with the patient and discussion with the general surgeons, a conservative management approach was decided, and she completed a 10-day course of Augmentin. Her inflammatory markers and pain improved, and she was discharged on POD 13 with a plan for general surgical follow up. Upon review in clinic her clinical picture had improved and there was no requirement for surgery. There have been no reported complications following conservative management of the appendicitis.

DISCUSSION

Abdominal pain following ventral surgery is a common complaint and one that provides a diagnostic challenge. The possible differentials are large and there are several factors which make an accurate diagnosis difficult. Any surgical procedure is often accompanied with pain in the post-operative period and can be difficult to differentiate from acute pathology. It is therefore important to keep an open mind when investigating these patients. The use of ultrasound and CT scans are an important tool in allowing a diagnosis to be made.

The exact aetiology of many patients' appendicitis is still unclear. There has been no direct link found between abdominal surgery and appendicitis. Whilst there are known risks following LLDN, there is no current recognised association with appendicitis. This is only the second reported case of this type in British literature. In the systematic analysis of 190 articles by K Kortram *et al.* 2016 of peri-

operative complications, out of 12,400 LLDN cases from 190 different countries, there were 4 appendicitis' reported as a complication [10]. This represents a very small percentage of complications.

This case study showed the successful use of conservative management in managing appendicitis post LLDN. Conservative management presents several benefits, particularly in LLDN patients. Not only are there less complications associated with it, but it also prevents the need for an operation. This is pertinent in LLDN patients who are otherwise healthy individuals who have already undergone a major operation. Risks such as deep vein thrombosis and wound and chest infections greatly increase with a second operation. Protecting the residual kidney function is also an important factor to consider. Complications of appendicectomy, such as sepsis, can increase the risk of kidney injury.

The other reported case in British literature described an atypical presentation of appendicitis 16 days post operatively diagnosed after laparoscopic investigation [11]. The definitive management chosen was appendicectomy which was performed with no reported complications.

In conclusion, there are important points to consider when learning from this case. Appendicitis post LLDN can present a diagnostic challenge but with appropriate examination and investigation a prompt diagnosis is possible. A conservative approach can be successful and offers a safe and appropriate alternative to a patient. A multi-disciplinary approach between renal and general surgeons is important to ensure the correct management decision is made. This case report describes the first successful and safe management of appendicitis post LLDN using a conservative approach.

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