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Laparoscopic Management of Cryptorchidism in Adults

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Abstract

Objectives: Little is reported on the management of impalpable testis in adults. We present the impact of laparoscopy in this patient group.

Patients and methods: Twelve adult patients have been referred to our centre over the last year, with impalpable testis. Pre-operative assessment was by either ultrasound or magnetic resonance imaging (MRI) or both. Quality of life and patient satisfaction were assessed by validated SF8^{TM} and client satisfaction (CSQ-8) questionnaires. Patients were also administered a self constructed questionnaire specifically looking at the impact of a laparoscopic service on their condition.

Results: The mean age was 29 yrs (range: 19–36). Two patients declined treatment. Of ten patients undergoing transperitoneal laparoscopy, five had intra-abdominal testes treated by laparoscopic orchidectomy (none malignant), two had the vas going into the deep ring and needed inguinal orchidectomy for an impalpable nubbin while in three cases there were blind ending vessels and vas. SF8 scores for physical HRQoL were unchanged but mental scores were significantly improved ($p < 0.03$). All patients were completely satisfied with a mean CSQ-8 score of 30.6 out of a possible 32. The majority of patients indicated that the availability of a laparoscopic service had prompted them to seek medical advice.

Conclusions: Laparoscopic examination and orchidectomy is a safe and reliable procedure. Excellent patient satisfaction and quality of life are achievable. In particular mental health scores improve as previous uncertainty is removed. The advent of laparoscopy has encouraged adult patients to seek advice regarding a condition that has been present since childhood. We advocate the use of laparoscopy in evaluating and treating adult patients with maldescended testes.

Keywords: Laparoscopy; Impalpable testis; Cryptorchidism; Health related quality of life; Patient satisfaction

1. Introduction

With an incidence of 1% at one year of age, cryptorchidism is usually diagnosed and treated in early life [1]. Only a few cases escape early detection by the school health program and come to light in adulthood. With an increasing immigrant population from less developed countries there has been an associated rise in the number of cryptorchid adults. Though the increase in incidence of testis cancer has been well demonstrated the only evident risk factor is cryptorchidism [2]. Late detection can be a problem in countries with underdeveloped health programs [3]. Risks associated with cryptorchidism include trauma, torsion and development of malignancy [4]. An undescended testis may be palpable or impalpable. An impalpable testis may be intra-abdominal, atrophic or absent [5]. Ultrasonography and magnetic resonance imaging (MRI) are the non-invasive investigations used to evaluate these patients, however the literature suggests their sensitivity is limited (32–67%) [6]. Laparoscopy is both diagnostic and therapeutic with the main benefit of initiating treatment as soon as diagnosis is made. It is

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now regarded as the gold standard for the management of cryptorchidsm in children [7], but few reports address its role in the adult population. In this paper we report our experience of laparoscopy in the management of cryptorchidism in 12 adults.

2. Patients and methods

Twelve adult males with impalpable testis were referred to our department over one year. Of these, 11 had unilateral and 1 bilateral undescended testes (one impalpable and the other in the groin). The mean age of the patients was 29 years (range 19–36 years). All patients were investigated for testicular tumour markers [α fetoprotein (AFP), β HCG & LDH] and underwent either an ultrasound scan of the abdomen, pelvis and inguinal regions or magnetic resonance imaging (MRI) of abdomen, pelvis and inguinal regions or both in addition to a plain chest radiograph. After the initial assessment, patients were counselled and informed consent was obtained for a laparoscopic procedure. Two of the twelve patients declined any form of surgery (both had unilateral maldescent). They are being monitored regularly by ultrasound.

2.1. Operative technique

The patients were positioned supine in the Trendelenburg position. A pneumoperitoneum was created using the open Hasson technique. A 10 mm umbilical camera port and two additional ports were introduced one 10 mm port on the ipsilateral side fingerbreadth below the umbilical port in the mid clavicular line, the other a 5 mm port at a point corresponding to the McBurney's point on the contralateral side. After the first five operations we changed port positioning to have the camera at the umbilicus and the two working ports (10 mm, 5 mm) contralateral to the side of the maldescended testis. This seems to make the operating easier as the surgeon does not have to lean over the patient. The gonadal vessels and vas deferens were identified. The peritoneum above the vessels was then opened and the vas deferens dissected to locate the testis. Three outcomes were noted: (a) intra-abdominal testis, (b) blind ending vessels and vas and (c) the vas and vessels entering the deep inguinal ring (i.e. impalpable inguinal testicular nubbin) (Fig. 1a, b, and c). Intra-abdominal testes were treated laparoscopically by orchidectomy. Patients who had vessels and vas going into the inguinal canal had open inguinal exploration and orchidectomy of an inguinal testicular nubbin. In two patients who appeared to have blind ended vas, an atrophied testis was located at the deep inguinal ring and excised. Only one patient had insertion of a testicular prosthesis as requested, although it was offered to all patients.

Basic demographic data was collected on all patients. In addition operative time, intra-operative blood loss, post-operative analgesia requirements, length of hospital stay, time to full recovery and complications were recorded.

2.2. Health related quality of life (HRQoL) and Patient Satisfaction (PS)

Quality of life of the patients was assessed by administration of the SF8^{TM} questionnaire [8], a validated health related quality of life questionnaire, pre-operatively and four weeks post procedure. The SF8 questionnaire has two components, physical (PCS8) and mental (MCS8). Patient satisfaction was assessed using the client satisfaction short form-8 (CSQ-8) questionnaire and a specific self-formulated questionnaire in the 4th post-operative week. This questionnaire assessed not only overall satisfaction but also patient attitudes towards informed consent using a procedure specific video and laparoscopic information leaflet. An independent member of staff separate from the laparoscopy team collected both the HRQoL and patient satisfaction data to minimise clinician bias.

3. Results

Tumour markers (one AFP, one β HCG) were found to be raised in two out of twelve patients. The levels reverted to normal after laparoscopic orchidectomy-neither had malignancy in the excised testis or any other abnormality to explain their abnormal blood tests. The imaging modalities included ultrasound which gave an accurate diagnosis in 3 out of 8 patients (37.5%) and MRI was accurate in 4 out of 6 patients (66.7%). Laparoscopy on the other hand was 100% accurate.

One patient with bilateral maldescent (left inguinal, right absent testis) was also found to have micropenis, hypospadias, and azoospermia and was referred to the genetics department for karyotype analysis. He had biopsies taken from his inguinal testis for infertility diagnosis and showed absence of sperms and no evidence of intra tubular germ cell neoplasia. The cord and vessels were too short to allow sufficient mobilisation to bring the inguinal testis into the scrotum. The patient is on testosterone supplement. He and his partner are being counselled for artificial insemination by a donor.

Of the ten patients who underwent transperitoneal laparoscopy, five had intra-abdominal testes and underwent orchidectomy, two had a testicular nubbin in the inguinal canal necessitating groin exploration and excision of the nubbin and in three there were blind ending vessels and vas which needed no further treatment. Histology did not show any carcinoma in situ or malignancy in any patient. The operative times were between 40 and 100 minutes (mean 60 minutes). Blood loss was less than 10 ml in all cases. The mean dose of morphine or equivalent administered post-operatively was 3.5 mg. The mean post-operative hospital stay was 1.5 days (range 1–2 days).

The mean time to return to normal activity was 10.4 days (range 4–28 days). One patient had a minor complication in the form of superficial wound infection which delayed his full recovery to 28 days.

Quality of life data assessed by SF8 HRQoL form pre-op and at 4 weeks post-op resulted in mean PCS8 of 54.35 and 54.48 ($p < 0.45$) respectively. Mean MCS8 pre- and post-operatively were 39.88 and 55.82 ($p < 0.03$) respectively.

Mean CSQ-8 score was 30.6 (of a possible maximum score of 32) assessed at 4 weeks post-operatively. 83.3%