

Extended Long Term Functional Outcome of Inflatable Penile Prosthesis in a Single Institution

Abstract:

AZ Thomas, R Carrol, RP Manecksha, JA Thornhill, R Grainger, TED McDermott
AMNCH, Tallaght, Dublin 24

Abstract

We sought to evaluate the extended long term functional outcome of the AMS700 three piece inflatable prosthesis in men with erectile dysfunction in a single urological department and assess our revision rates. Patients that underwent first-time insertion or revision of an AMS700 3 piece inflatable penile prosthesis between 1984-2007 were included. Data was obtained from medical records and long term follow up of patients was conducted by telephone interview. The medical records of 38 patients were available for review. Of these 38 men, 56 prostheses were inserted. The mean follow up was 8.4years (101 months). The revision rate at 50 months postoperatively was 7/38 (18%). The overall revision rate was 18/38 (47%). The mean time to revision in these 18 patients was 72 months (12-156 months) after initial insertion of AMS700 penile prosthesis. This study highlights that with longer follow up revision rates markedly increase after 72 months.

Introduction

Male erectile dysfunction (ED) is a common medical problem. Despite the development of phosphodiesterase type 5 inhibitors, intracavernous or intraurethral alprostadil approximately 30-40% of men with ED are not adequately treated by such treatments. This may be secondary to cost, side effects, contraindications or lack of satisfactory erectile response. For men who do not respond to oral or injectable erectogenics, inflatable penile prosthesis can provide a safe and effective alternative. Since Scott et al 1973 described the first inflatable prosthesis, over the last 35 years these devices have become well established in treating men with resistant ED. The three piece inflatable penile prosthesis has the highest patient satisfaction rates and lowest mechanical revision rates of almost any medically implanted device. We sought to evaluate the extended long term functional outcome of the AMS 700 three piece inflatable prosthesis in men with ED in a single urological department. Our primary outcome was to evaluate the long term functional outcome and revision-free survival of the AMS700 penile prosthesis. Our secondary outcomes included postoperative complications, prosthesis erosion, infection and mechanical failure rates.

Methods

Patients that underwent first time or revision of an AMS700 three piece inflatable penile prosthesis between 1984 to 2007 were included. Data was obtained from medical records and included patient's demographics, aetiology of ED, previous ED therapy, implant type, surgery date, revision history including date and reason for revision. Early and late post operative complications and morbidity was also recorded. Long term follow up by telephone interview ascertained prosthesis function and date of failure if relevant. Patients were asked to subjectively grade their degree of overall satisfaction with in implant as either satisfied or unsatisfied.

Results

The mean age of patients was 48 years (24-64 years). A total of 92 men underwent insertion of AMS700 inflatable penile prosthesis between 1984 and 2007 in the Adelaide and Meath Hospital. Of these, the medical records of 38 men were available for review and long term follow up. The medical records of men who had penile prosthesis originally inserted in the Meath Hospital before its closure in 1998 who did not attend the new Adelaide and Meath Hospital (AMNCH) for urological follow-up were not available for review (54/92). In the group of 38 men, a total of 56 prostheses were inserted. The mean follow up after initial prosthesis surgery was 8.4 years (101 months, range 24-300 months).

Figure 1: Mean revision rate for 3-piece AMS penile prostheses at 50 months and 101 months follow up (n=36).

The overall revision rate for any reason was 47% (18/38). The average time to revision in these 18 patients was 72 months (12-156 months) after initial insertion of AMS700 penile prosthesis. The revision rate at 50 months postoperatively was 18% (7/38) (Figure 1). At 101 months follow-up post penile prosthesis implantation mechanical failure from either pump failure or reservoir leak was 25% (15/56). Prosthesis erosion occurred in 7.1% (4/56) of cases. Infection of prosthesis resulting in removal or revision occurred in 3.5% (2/56). Postoperative complications after surgery occurred in 3.5% (2/56) of prosthesis implanted. One patient developed a wound cellulitis and another developed post-operative wound hematoma. Both patients were successfully managed conservatively. In the telephone interview, 65% (25/38) patients expressed overall satisfaction with the penile prosthesis versus 35% (13/38) were unsatisfied.

Discussion

Long-term revision-free survival for inflatable penile prosthesis is probably the highest of any implanted medical device implanted in humans. A review of the literature shows that revision-free survival of inflatable penile prosthesis has rarely been reported over 5 years. The largest study to date by Wilson et al (2007) assessed long term reliability over 10 and 15 years, but only estimates long term revision free survival using Kaplan-Meier statistical models. The authors estimate an overall 5 year revision rate for all types of inflatable implants at 20% and 10 year revision rate in virgin implants as 32%. Revision rates specifically for the AMS 700 prosthesis are higher at 5 and 10 years at 24% and 41% respectively.

The main purpose of the present study was to evaluate the longterm function, longevity and complication rate of AMS700 penile prostheses in a single centre. Mean overall follow up after initial surgery is 101months (8.4 years). Our overall revision rate with the AMS700 was 47% and mean functional longevity from initial implant insertion was 72_{3,6} months (6 years). Review of the literature suggests lower long term revision rates, but these series include all types of prosthesis including malleable and non-malleable implants which have significantly fewer revision and erosion rates than 3 piece inflatable prosthetic implants such as the AMS 700. Our overall 50 month revision rate (18.4%) and mechanical failure rate at 72_{7,8} months postoperatively (18 %) with the AMS 700 implant is comparable to that reported in other large series. Overall 65% of patients in our study were satisfied with the 3 piece inflatable prosthesis. The most common reason for dissatisfaction among the other 35% of patients was mechanical failure and the long waiting-list time until revision in our public health care system. Our patient satisfaction rates are lower than other series_{8,9}, but our results reflect a much longer follow up and identify that revision rates increase markedly after 72 months.

The penile prosthesis remains the gold standard in the treatment of refractory organic ED. The 3 piece inflatable prosthesis such as the AMS700 provides a controlled artificial erection that is easy to conceal and has greater₁₀ patient satisfaction in comparison to non-malleable and malleable penile implants. However, the 3 piece device such as the AMS 700 is more expensive and with higher rates of infection and mechanical failure results in higher revision rates even in the longterm.

Correspondence: J Thornhill
AMNCH, Tallaght, Dublin 24
Email: Marjorie.WhiteFlynn@amnch.ie

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