**Comparison of transverse mattress vs continuous suture urethroplasty in tubularized incised plate hypospadias repair: a prospective study**

**Introduction:**

Hypospadias is a prevalent congenital anomaly , affecting approximately 1 in 200 to 1 in 300 live births1. It is characterized by urethral meatus being positioned ectopically on ventral surface of penis, proximal to its normal location and often accompanied by varying degrees of chordee2. Numerous classification system have been proposed to categorize hypospadias, primarily based on position of ectopic meatus3.

The primary objective of hypospadias repair is to construct a functional urethra and achieve a penis with satisfactory cosmetic appearance, enabling adequate sexual function4. However , hypospadias repair is a complex and challenging procedure, with complication rates exceeding those of reconstructive surgeries. The most common and significant complication associated with hypospadias repair is The development of urethrocutaneous fistula which occurs in a substantial portion of cases5,6.

The ideal technique for repairing hypospadias should be straightforward, uncomplicated and associated with minimal complications7. The introduction of tubularized incised plate urethroplasty by Snodgrass in 1994 significantly improved the management of various types of hypospadias8-13. The technique has gained widespread acceptance for distal hypospadias repair due to its technical simplicity and low complication rate. As a result numerous articles have been published on nuances and variations of this procedure14. Despite the surgical success of this technique, some complications still occur and ongoing efforts are being made to achieve better outcomes15.

 While there is a consensus on use of absorbable sutures, the suturing method( continuous vs mattress) remains a topic of debate. Furthermore, although some studies found no correlation between suturing pattern and outcome17, others concluded that suturing technique may impact results and complications rate18. This study aims to evaluate and compare the outcomes and complications rates associated with continuous versus mattress suture technique in tubularized incised plate urethroplasty for hypospadias repair in cases with an adequate urethral plate.

**Objective:**

To compare outcome of continuous and mattress suture in hypospadias repair using TIP technique.

Urethrocutaneous fistula, meatal stenosis, glans shape, urethral stricture and surgical wound infection will be compared among two groups.

**Followup and outcome assessment:**

Patients will be examined at the time of catheter removal ,then monthly for initial 6 months.

**Sample collection:** simple random sampling

**Inclusion criteria:**

Only primary cases with sub coronal, distal , mid penile and proximal hypospadias suitable for Snodgrass TIP urethroplasty are included in the study .

**Exclusion criteria:**

Proximal hypospadias, recurrent hypospadias , moderate to severe chordee are ecluded from the study.

**Sample size:**

Sample size of 100 patients (50 patients in each group) is estimated by using 5% level of significance, 90% power of test with expected % Urethrocutaneous fistula Group A as 12.5% and B as 37.5%:

|  |  |
| --- | --- |
| n= | {Z1-α √2p(1-p) + Z1-β √p1(1-p1)+p2(1-p2)}2 |
|  | (p1-p2) |
| Z1-α= | Confidence level 95% = 1.96 |
| Z1-β= | Power of test 90%  |
| p1= | Population Proportion I= 12.5% |
| p2= | Population Proportion II= 37.5% |

**Method**

It will be a prospective study to compare the effect of continuous vs mattress suture urethroplasty on post operative complication rate . The boys will be categorized into two groups: Group A will consist of 50 boys undergoing TIP repair using continuous subcuticular suture [urethroplasty](https://www.sciencedirect.com/topics/medicine-and-dentistry/urethroplasty) and Group B of 50 boys undergoing TIP repair using mattress suture urethroplasty. After removal of the catheter, [urinary](https://www.sciencedirect.com/topics/medicine-and-dentistry/urinary-system) stream will be observed in all patients of both groups.

**Data collecting procedure:**

After approval from ethical review committee, all patients presenting with hypospadias are checked for their eligibility according to inclusion and exclusion criteria. All patients who fulfilled the criteria will be included in this study. Parents/guardians of the patient will then be briefed about our research, its objectives and outcomes and informed consent is taken. The informed consent and patient safety forms will be filled and signed by the parents/guardians then a structured questionnaire will be filled by the duty doctor after interviewing the parents / guardians. Data collected by this questionnaire will then be analyzed.

**Data analysis procedure:**
 Data will be analyzed using SPSS 26. And a p value of less than 0.05 will be considered statistically significant. Simple frequencies and proportions will be used to describe the demographic and other variables.

**References:**

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# **Patient informed consent form**

I agee to participate in this study:

The doctor has explained about this research study. The purpose of this study is to determine the efficacy and safety of these two surgical techniques in hypospadias repair .I have been informed that in addition to my bio data and other relevant medical information, I am required to give consent for either type of surgical repair technique. The progress of surgical repair will be monitored, and data will be collected regarding the outcome and complications. Both surgical techniques are established procedures, and the risks are similar to those associated with standard hypospadias repair surgeries. There may be potential benefits in terms of improved surgical outcomes and reduced complications.

Confidentiality: All personal information collected during this study will be kept confidential.

I understand that the study will not involve any hazardous effect and I ll not get any financial benefit from this study.

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 Date Participant’s name and signature for consent

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 Date witnesss name and sinature

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 Date inestigator name and signature

# **معلوماتی رضا نامہ**

**Comparison of mattress vs continuous suture urethroplasty in tubularised incised plate hypospadias repair. A prospective study** “

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**میں اس مطالعے میں شرکت کرنے کا ارادہ کرتا/کرتی ہوں:مجھے معلوم ہوگیا ہے کہ ڈاکٹر نے**

 **مجھے اس تحقیقاتی مطالعے کے بارے میں تفصیل سے بتایا ہے۔ اس مطالعے کا مقصد یہ تعین کرنا ہے کہ دو آسانراہی سے حاصل ہونے والی جراحی تکنیکوں کے درمیان میں کونسی تکنیک بہتر اور محفوظ ہے۔ مجھے مطلع کیا گیا ہے کہ میری بائیو ڈیٹا اور دوسری متعلقہ طبی معلومات کے علاوہ، مجھ سے جراحی ریپیئر تکنیک کی موافقت دینے کی ضرورت ہے۔ جراحی ریپیئر کی ترقی کو نظر انداز کرتے ہوئے، اس کا معائنہ کیا جائے گا اور نتائج اور کمپلیکیشنز کے بارے میں معلومات جمع کی جائیں گی۔ دونوں جراحی تکنیکز اقرار شدہ عملیات ہیں، اور ان کا خطرہ معمولی ہائپواسپیدیاس ریپیئر کی معمولی جراحیوں کے ساتھ موازنہ ہے۔ ان میں بہتر جراحی نتائج اور کمپلیکیشنز کم ہونے کی ممکنہ فوائد ہو سکتی ہیں۔**

**رازداری:**

 **اس مطالعے کے دوران جمع کردہ تمام ذاتی معلومات کو خفیہ رکھا جائے گا۔میں سمجھتا/سمجھتی ہوں کہ مطالعہ میں کوئی خطرہ نہیں ہے اور میں اس مطالعے سے مالی فائدہ حاصل نہیں کروں گا/ کرنیں گا۔**

**تاریخ ٖ درخواست دینے والے کا نام اور دستخط**

**تاریخ ٖ گواہ کا نام اور دستخط**

 **ٖ**

 **محقق کا نام اور دستخط تاریخ**

**DATA COLLECTION QUESTIONNARE**

**Patient Information**

**Patient's Name:**

**Age:**

**Date of Surgery:**

**Type of Hypospadias:**

**Surgical Procedure**

**Type of Suture Technique: Continuous / mattress**

**Suture Material Used:**

**Duration of Surgery (minutes):**

**Postoperative Outcome**

**Immediate Complications: bleeding, infection**

**Postoperative Urethral Fistula: [Yes / No]**

**Time to Catheter Removal (days):**

**Cosmetic Appearance**

**glans shape: symmetrical/non-symmetrical**

**Scarring: minimal/moderate/severe**

**Penile shaft straightness: yes/no**

**Follow-up**

**Follow-up Period (months):**

**Need for Additional Procedures: Yes / No**

**Long-term Complications: urethral strictures / meatal stenosis**

**Patient Satisfaction with Outcome: Satisfied / Neutral / Dissatisfied**

**Ease of Recovery: Easy / Moderate / Difficult**