



# Orchiopexy (Open and MIS Approaches)

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## Indications and Benefits

- Absence of spontaneous testicular descent by 6 months of age (corrected for gestational age)
- In prepubertal boys with palpable, undescended testes
- In prepubertal boys with nonpalpable testes
- In cases of acute or intermittent testicular torsion
- Benefits: Testicular cancer prevention/screening, preservation of fertility and psychological

## Risks and Alternatives

- Standard surgical risks (bleeding, infection, need for additional procedures, and risks of anesthesia)
- Injury to adjacent structures (testicle, epididymis, ilioinguinal nerve, spermatic cord vessels, and vas deferens)
- Testicular retraction, persistent cryptorchidism, testicular atrophy, postoperative hernia, and testis torsion

- Alternatives: Approach (open or laparoscopic) and/or orchiectomy

## Essential Steps

### Inguinal Orchiopexy

1. Identification and exposure of the external ring.
2. Opening of the external oblique fascia.
3. Identification and mobilization of the testicle off the gubernaculum and dissection of the cremasteric muscle fibers.
4. Isolation and preservation of the ilioinguinal nerve.
5. Dissecting off the patent processus vaginalis/hernia sac from the cord structures and high suture ligation of the sac.
6. Additional proximal mobilization of the cord structures as needed.
7. Delivery of testis from inguinal region to scrotum.
8. Creation of subdartos pouch for testis.
9. Pexy/fixation of testis to dartos fascia of the hemiscrotum.

### Laparoscopic Orchiopexy

1. Infraumbilical or transumbilical incision.
2. Establishment of pneumoperitoneum and identification of testicle or absence of the same.

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3. Release of gubernacular attachments.
4. Mobilization of the cord structures, including spermatic cord vessels and vas deferens.
5. Dissection of peritoneal tissues off the cord structures until the testis is able to reach contralateral internal inguinal ring without significant tension.
6. Pass laparoscopic instrument antegrade from abdominal port adjacent to inferior epigastric vessels and into scrotum.
7. Creation of subdartos pouch and passing a laparoscopic port retrograde into the peritoneal cavity under direct vision through which a second instrument can be utilized to grasp testicle.
8. Pull testicle through the new tract and into appropriate scrotal position.
9. Pexy/fixation of testicle to dartos fascia of the hemiscrotum.
10. Release pneumoperitoneum, remove ports under vision, and close all incisions.

### Scrotal Orchiopexy

1. Transverse hemiscrotal or midline scrotal incision.
2. Locate testicle and perform detorsion in cases of testis torsion.
3. Dissect off gubernacular attachments and cremasteric fibers.
4. Dissect the vasal and vascular pedicle proximally by releasing surrounding attachments.
5. Identify any hernia sac, if present, dissect off cord structures, and ligate sac as needed.
6. Creation of subdartos pouch.
7. Pexy/fixation of testicle to dartos fascia of the hemiscrotum.

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### Note These Variations

- Inguinal orchiopexy
- Laparoscopic orchiopexy
- Scrotal orchiopexy

### Template Operative Dictation (Inguinal Orchiopexy)

**Preoperative Diagnosis** Undescended testicle

**Postoperative Diagnosis** Same as preoperative diagnosis

**Findings** Same as postoperative diagnosis

**Procedure(s) Performed** (Left/right/bilateral)  
Inguinal orchiopexy

**Anesthesia** General/regional +/- local

**Specimen** +/- Inguinal hernia sac

**Drains** None

**Implants** None

**Estimated Blood Loss** \_\_\_\_

**Indications** This is a/an \_\_\_\_-day/week/month/year-old *male* with a palpable undescended testicle. He was deemed to be a suitable candidate for inguinal orchiopexy. The risks and benefits of surgery were discussed with the parents/guardians at length and they agreed to proceed.

**Procedure in Detail** The patient was correctly identified in the preoperative area and brought to the operating room for surgery. Following satisfactory induction of anesthesia, the patient was placed in supine position and appropriately padded. Timeouts were performed using both preinduction and preincision safety checklists with participation of all present in the operative suite. These confirmed the correct patient, procedure, operative site, and additional critical information prior to the start of the procedure. The lower abdomen and genitalia were then prepped and draped in the usual sterile fashion.

A 1–1.5 in. incision was made in the groin overlying the inguinal canal, and the tissues were

dissected down to the external oblique fascia. The external ring was identified and the fascia was opened up to the level of the internal ring.

The ilioinguinal nerve was identified and carefully preserved throughout the entire dissection. The testis was found distal to the external ring (*or within the canal*) and dissected off the gubernaculum. The cremasteric muscle fibers were then dissected both medially and laterally up to the level of the internal inguinal ring (*In cases of a peeping testicle, the gubernaculum is used as a guide to locate the testis at the level of the internal inguinal ring.*). At this point in time, a hernia sac was located along the anteromedial surface of the cord and this was then carefully separated from the spermatic cord vessels and vas deferens with care not to injure the spermatic cord structures. The hernia sac was then isolated, cross clamped, divided, and then high suture ligated. This now allowed for adequate length on the spermatic cord for the testicle to reach the ipsilateral hemiscrotum without any tension. A finger was then inserted through the inguinal incision and placed superficial to the pubic tubercle and in the hemiscrotum, and a transverse hemiscrotal incision was performed. A subdartos pouch was created and a tonsil clamp placed in contact with the fingertip in the hemiscrotum, which was then guided back through the inguinal incision. At this point, the cord structures were confirmed to be orthotopic with the spermatic vessels anterior to the vas deferens. The inferior aspect of the testicle was grasped gently with the clamp and brought straight down to the ipsilateral hemiscrotum in an orthotopic manner. The testis was tacked to the dartos fascia within the scrotum using (*monofilament or braided; permanent or absorbable suture per surgeon preference*) suture, and the testis was replaced back into the scrotum.

The dartos muscle and scrotal incision were closed with absorbable suture. Hemostasis was excellent. An ilioinguinal block was then performed (*if regional anesthesia was not performed*). The inguinal incision was then closed in multiple layers with absorbable suture with great

care taken not to injure or entrap the ilioinguinal nerve during fascial closure. Dermabond (*or dressing of choice*) was applied to the incisions.

Upon completion of the procedure, a debriefing checklist was completed to share information critical to the postoperative care of the patient. The patient tolerated the procedure well, *was extubated in the operating room*, and was transported to the postanesthesia care unit in stable condition.

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## Template Operative Dictation (Laparoscopic Orchiopexy)

**Preoperative Diagnosis** Nonpalpable testis

**Postoperative Diagnosis** Same as preoperative diagnosis

**Findings** Same as postoperative diagnosis

**Procedure(s)**            **Performed** Laparoscopic orchiopexy

**Anesthesia** *General* plus local or regional

**Specimen** None

**Drains** None

**Implants** None

**Estimated Blood Loss** \_\_\_\_

**Indications** This is a/an \_\_\_\_-day/week/month/year-old *male* with nonpalpable testis. He was deemed to be a suitable candidate for laparoscopic orchiopexy. The risks and benefits of surgery were discussed with the parents/guardians at length and they agreed to proceed.

**Procedure in Detail** The patient was correctly identified in the preoperative area and brought to the operating room for surgery. Following satisfactory induction of anesthesia, the patient was placed in supine position and

appropriately padded. Timeouts were performed using both preinduction and preincision safety checklists with participation of all present in the operative suite. These confirmed the correct patient, procedure, operative site, and additional critical information prior to the start of the procedure. The lower abdomen and genitalia were then prepped and draped in the usual sterile fashion.

The bladder was drained completely using a catheter. An infraumbilical (*or transumbilical incision*) was made and the anterior rectus fascia was identified. Using a Veress needle technique (*or Hasson technique per surgeon preference*), the abdomen was insufflated to create a pneumoperitoneum and a 5-mm Versa step laparoscopy port was placed in the abdomen through the incision. The laparoscope was placed through the port and diagnostic laparoscopy was then performed.

We looked at the ipsilateral internal ring and found the testicle sitting proximal to the entrance of the ring. We then proceeded to place two additional 3-mm (*or 5-mm*) laparoscopic ports on either side of the abdomen lateral to and at the level of the umbilicus under direct vision.

The testicle was grasped with a Maryland grasper and the attachments to the gubernaculum within the inguinal canal were carefully dissected to free the testicle from the inguinal canal. During this time, the vas deferens was carefully observed and the presence of a long looping vas was noted (*if present*). Once the gubernacular attachments were freed with preservation of the vas, a triangular shaped peritoneal flap was created with the medial aspect being medial to the vas and the lateral aspect being lateral to the gonadal blood vessels. The blood vessels were dissected as far proximally as possible. The vas was dissected all the way close to the posterior aspect of the bladder with care to free the peritoneal flap from the ipsilateral ureter without injuring it. After the dissection was completed, the testicle reached the contralateral internal ring without tension.

The bladder was once again emptied (*if needed*) and a small ipsilateral transverse hemi-

crotal incision was made. A laparoscopic Maryland grasper was passed through the ipsilateral working port, medially to the inferior epigastric vessels and lateral to the obliterated umbilical ligament into the groin and out through the scrotal incision. A 5-mm (*or 12-mm, per preference*) laparoscopic port was passed retrograde into the abdomen over the Maryland grasper and the port placed into the peritoneal cavity. Through this port, the testicle was grasped inferiorly and brought down into the scrotum. (*The abdomen can be desufflated at this point if needed to assist with the testis reaching the scrotum.*)

**[Choose One:]**

***If testicle did not reach the scrotum:*** (1) The insufflation was maintained/restarted and the peritoneum overlying the vessels was removed and the cord further skeletonized. At this point, the testis had enough length to reach the scrotum. (2) The testis was still on tension and instead of skeletonizing the cord further, we proceeded with transection of the gonadal vessels to perform a Fowler-Stephens procedure. The peritoneal attachments along the vas deferens were maintained and the spermatic vessels were cleaned off. A 5-mm laparoscopic clip applier was used and two clips were placed proximally and one distally along the vessels. The vessels were transected in between the clips and further dissection distally was done to unfurl the remaining cord structures between the testis and vas deferens, which gave enough length for the testicle to reach the dependent portion of the scrotum.

***If/when testicle did reach the scrotum:*** A subdartos pouch was created and the testicle was stitched to the bottom of the dartos pouch without significant tension using a \_\_\_-0 silk (*or Prolene*) suture. The dartos fascia overlying the incision was closed with a running (*or interrupted*) \_\_\_-0 absorbable suture and the skin reapproximated with absorbable stitches.

All ports were removed under direct vision, the CO<sub>2</sub> gas was completely evacuated, and the fascia and skin were closed with absorbable suture. Dermabond (*or dressing of choice*) was

used to cover the incisions as skin dressings. Upon completion of the procedure, a debriefing checklist was completed to share information critical to the postoperative care of the patient. The patient tolerated the procedure well, *was extubated in the operating room*, and was transported to the post anesthesia care unit in stable condition thereafter.

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## Template Operative Dictation (Scrotal Orchiopexy)

**Preoperative Diagnosis** Undescended testicle

**Postoperative Diagnosis** Same as preoperative diagnosis

**Findings** Same as postoperative diagnosis

**Procedure(s) Performed** Scrotal orchiopexy

**Anesthesia** General/regional +/- local

**Specimen** None

**Estimated Blood Loss** \_\_\_\_

**Indications** This is a/an \_\_\_\_-day/week/month/year-old male with a palpable undescended testis. He was deemed to be a suitable candidate for scrotal orchiopexy. The risks and benefits of surgery were discussed with the parents/guardians at length and they agreed to proceed.

**Procedure in Detail** The patient was correctly identified in the preoperative area and brought to the operating room for surgery. Following satisfactory induction of anesthesia, the patient was placed in supine position and appropriately padded. Timeouts were performed using both preinduction and preincision safety checklists with participation of all present in the operative suite.

These confirmed the correct patient, procedure, operative site, and additional critical information prior to the start of the procedure.

We made a transverse (*or midline scrotal incision if procedure is bilateral or done in the setting of testis torsion*) incision in the midscrotum overlying the palpable ipsilateral testis. We bluntly mobilized through the subcutaneous tissue. We identified the testis and placed a hemostat on the tunica of the testis and brought this out into the field. We dissected off the gubernacular attachments as well as the cremasteric fibers both medially and laterally all the way up to the external ring. (*The testis was detorsed into the orthotopic orientation (if the procedure is being done for testis torsion).*) We then carefully freed the testicle of investing tissue down to the vasal and vascular pedicle. The tunica vaginalis was opened and the testis was examined.

***If there is evidence of a patent processus vaginalis:*** A hernia sac was noted along the antero-medial aspect of the cord structures. This was carefully dissected off the spermatic cord vessels and vas deferens. The sac was then isolated, cross-clamped, and then high-suture ligated at the level of the external ring.

Enough length was gained in order to bring the testis in a dependent location in the scrotum. A subdartos pouch was created and the testis was fixed in the scrotum with \_\_\_\_-0 silk (*or Prolene*) suture(s). The testis was then placed back into the scrotum and we then closed the scrotal skin with absorbable suture. Dermabond (*or dressing of choice*) was used to cover the incision.

Upon completion of the procedure, a debriefing checklist was completed to share information critical to the postoperative care of the patient. The patient tolerated the procedure well, *was extubated in the operating room*, and was transported to the post anesthesia care unit in stable condition thereafter.