

Anterior Lumbar Spine Exposures

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Anterior Lumbar Spine Expsures

- DISCLOSURES

NONE

Anterior Lumbar Spine Exposure

- Anterior Lumbar Interbody Fusion (ALIF)
- Anterior Lumbar Artificial Disc Implantation

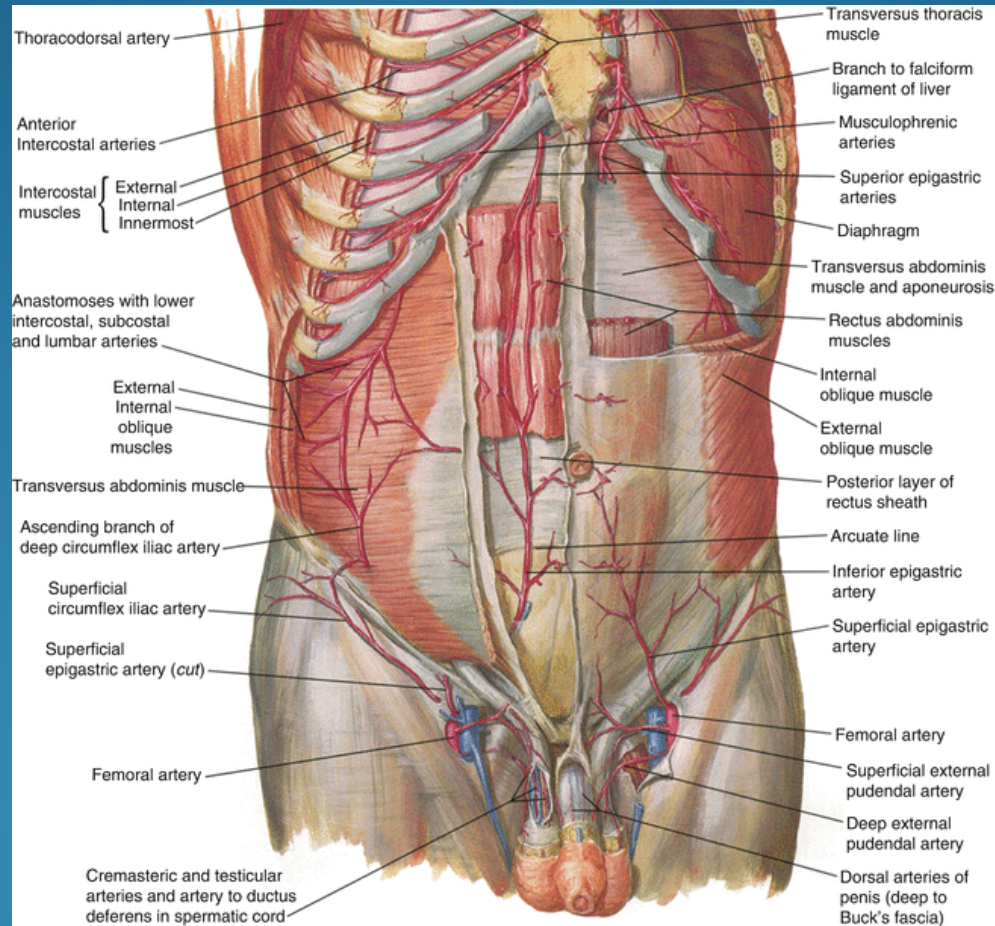
Anterior Lumbar Spine Exposure

- Anatomic Considerations
 - Anterior Abdominal Wall Structures
 - Retroperitoneal Space Mobilization

Anterior Lumbar Spine Exposure

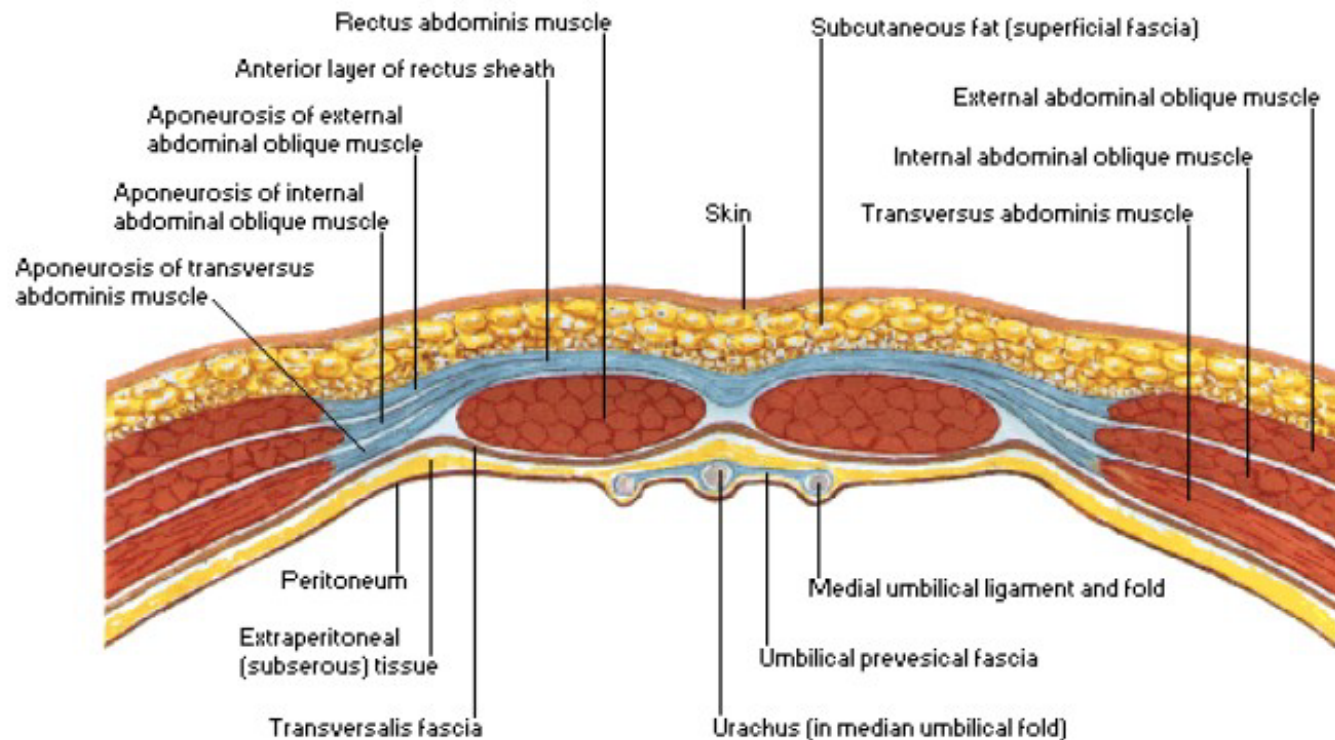
- Improvement in Incision Size
- Transabdominal vs. Retroperitoneal Approach
 - Improved Post op Recovery/Discharge

Anterior Lumbar Spine Exposure

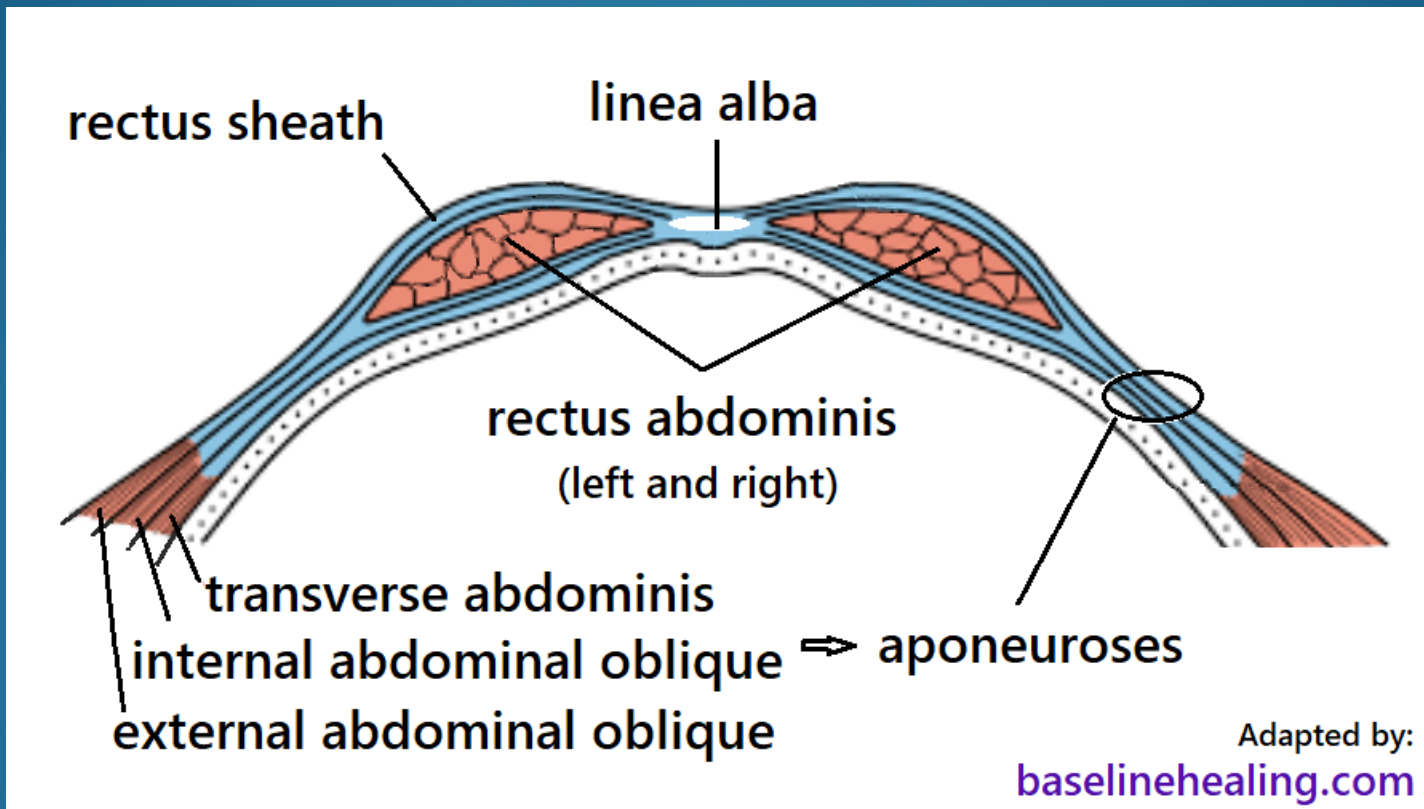


Anterior Lumbar Spine Exposure

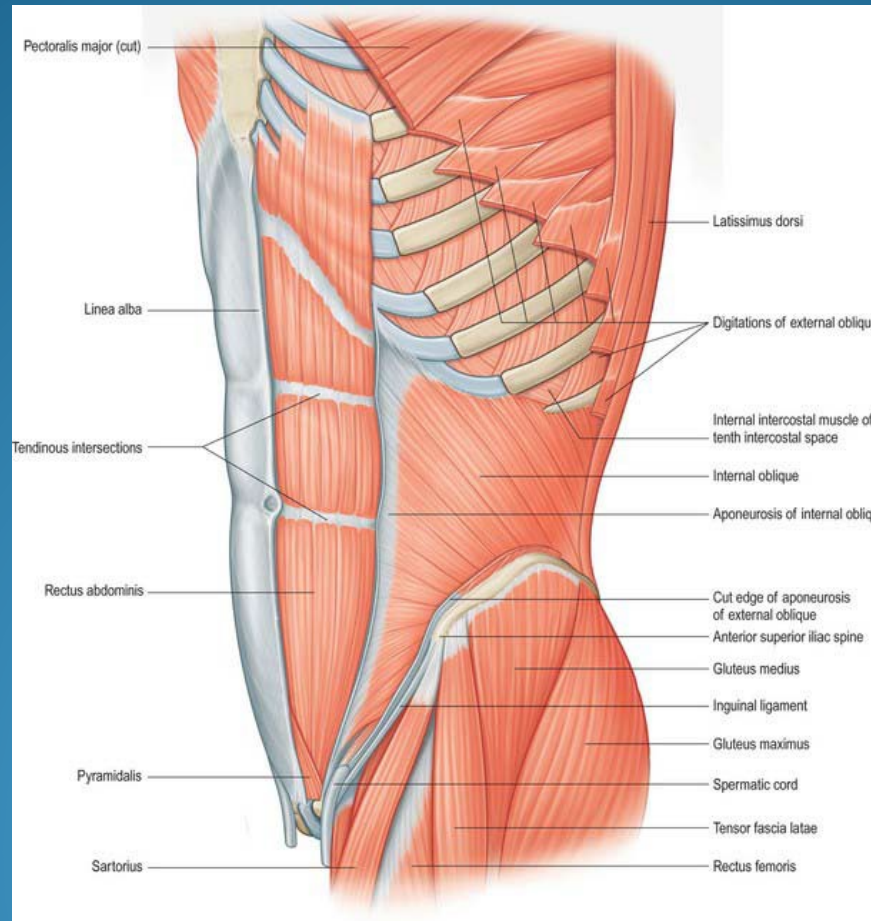
Cross Section Below Arcuate Line



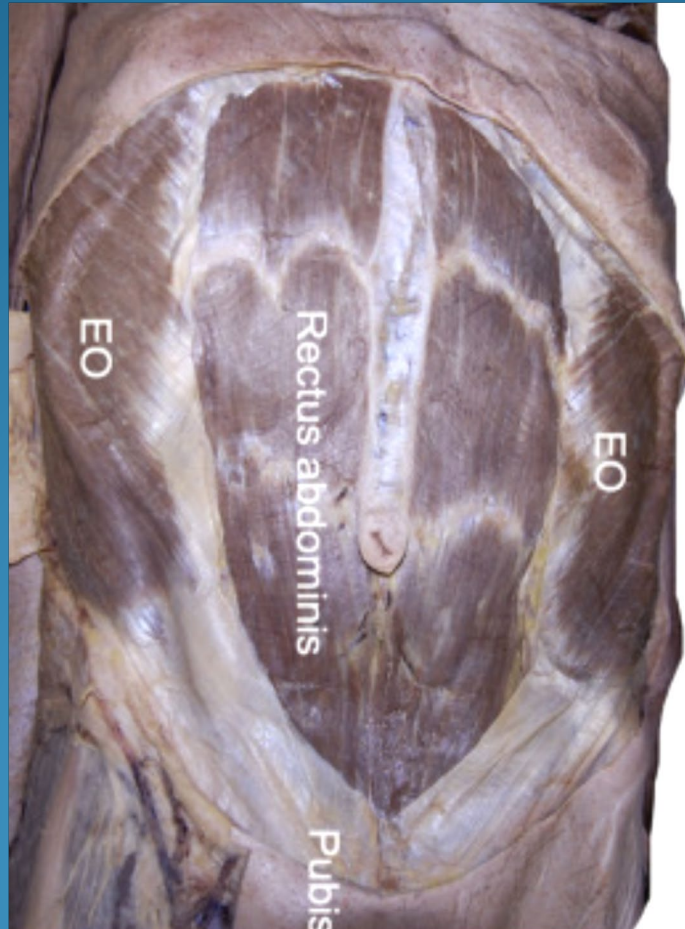
Anterior Lumbar Spine Exposure



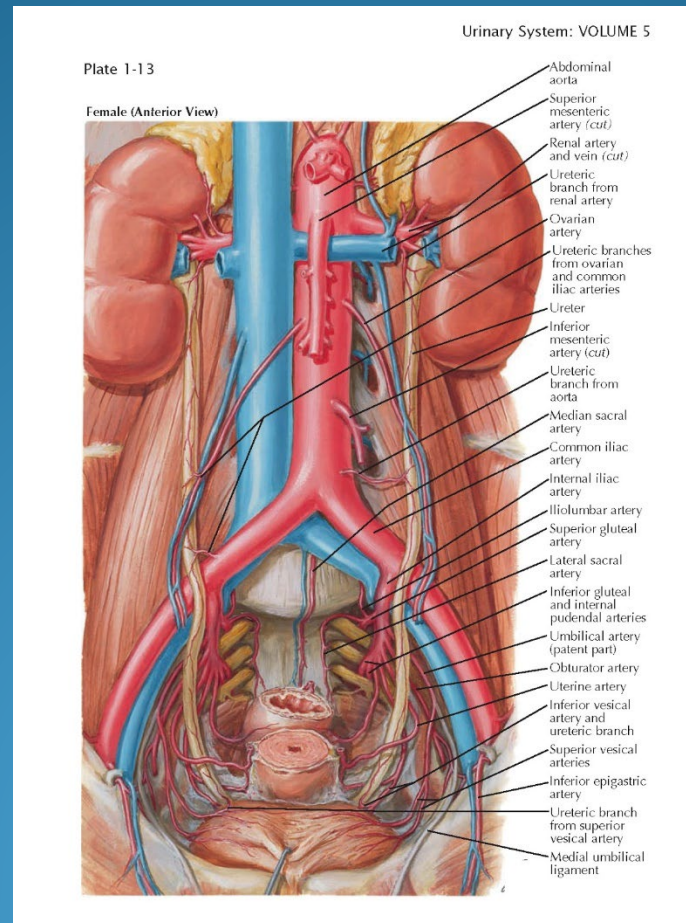
Anterior Lumbar Spine Exposure



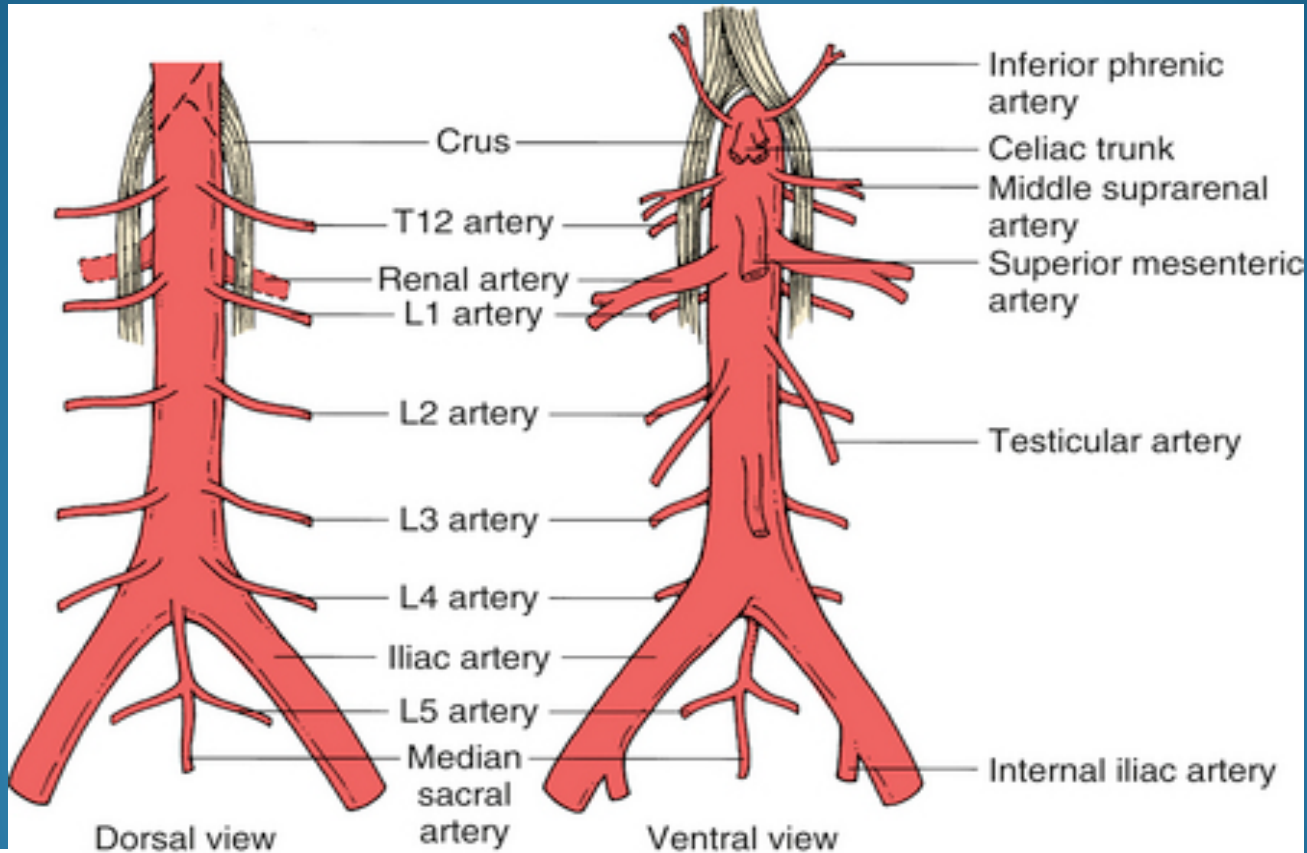
Anterior Lumbar Spine Exposure



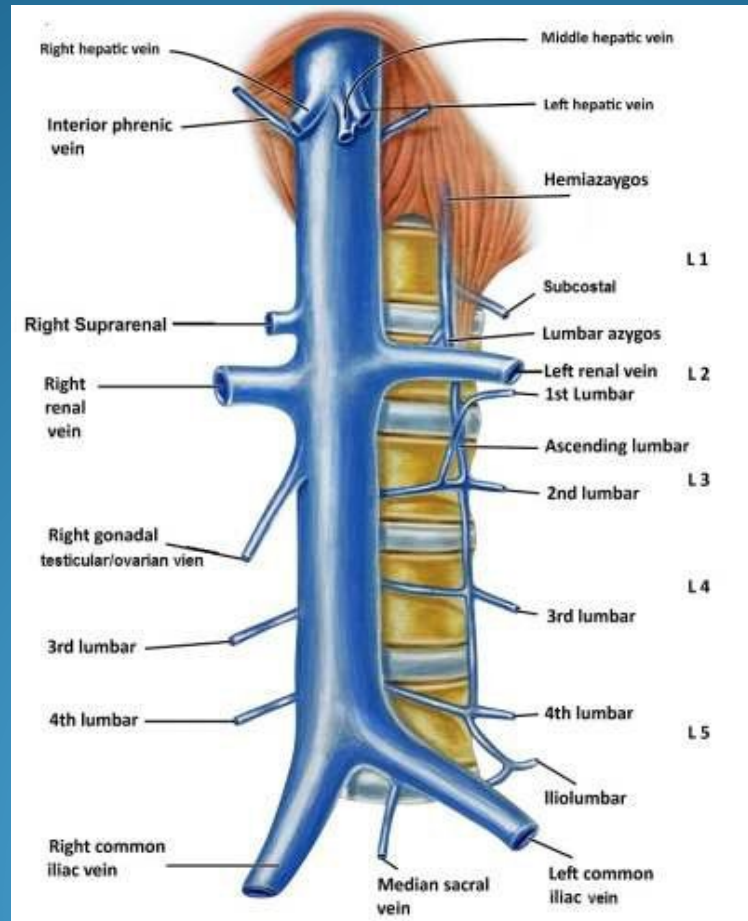
Anterior Lumbar Spine Exposure



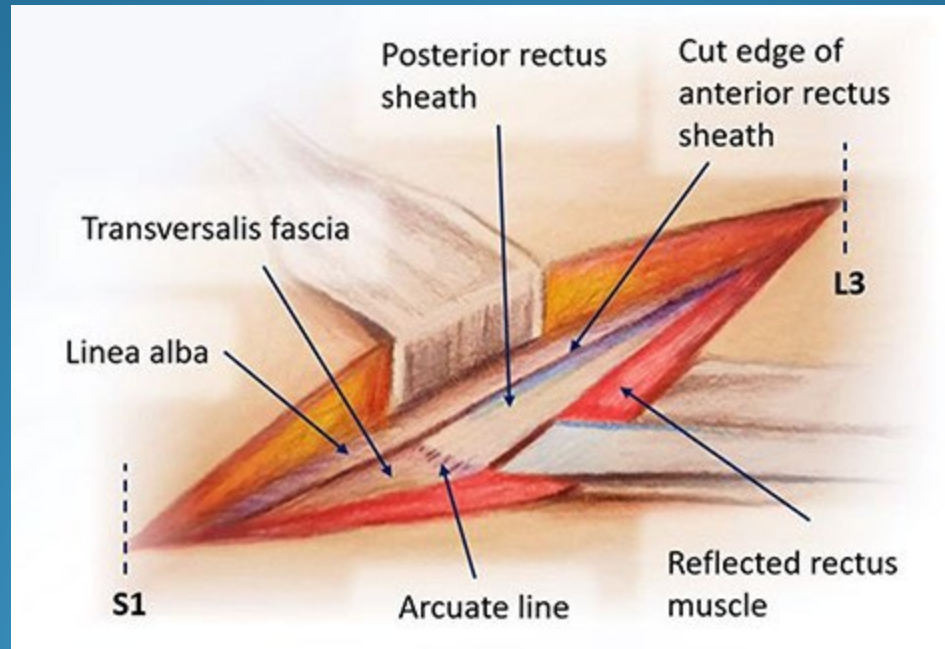
Anterior Lumbar Spine Exposure



Anterior Lumbar Spine Exposure

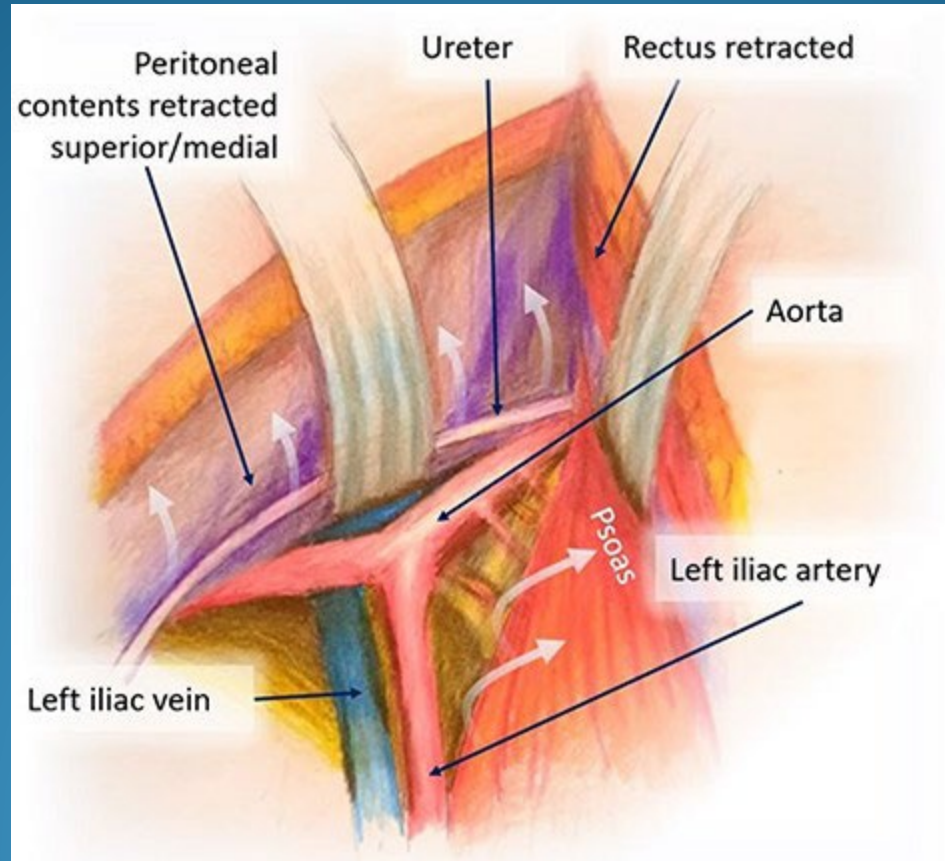


Anterior Lumbar Spine Exposure



Posterior rectus sheath exposure through a midline approach

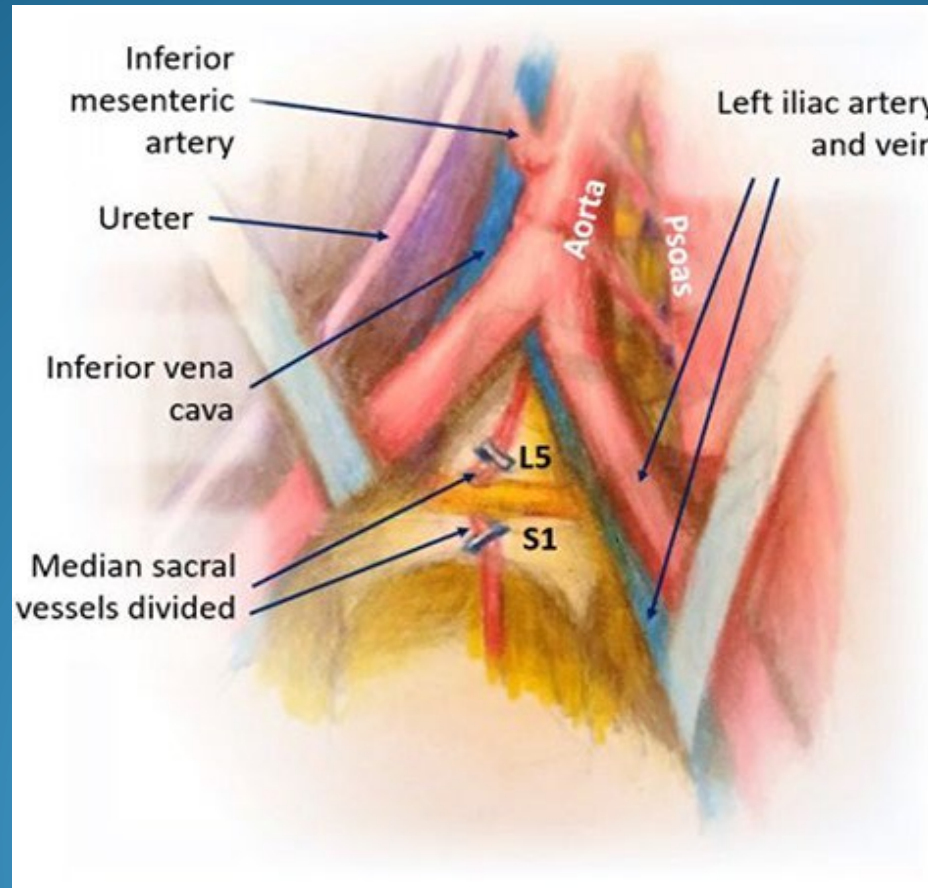
Anterior Lumbar Spine Exposure



Mobilization of the peritoneal cavity and
accessing the retroperitoneum

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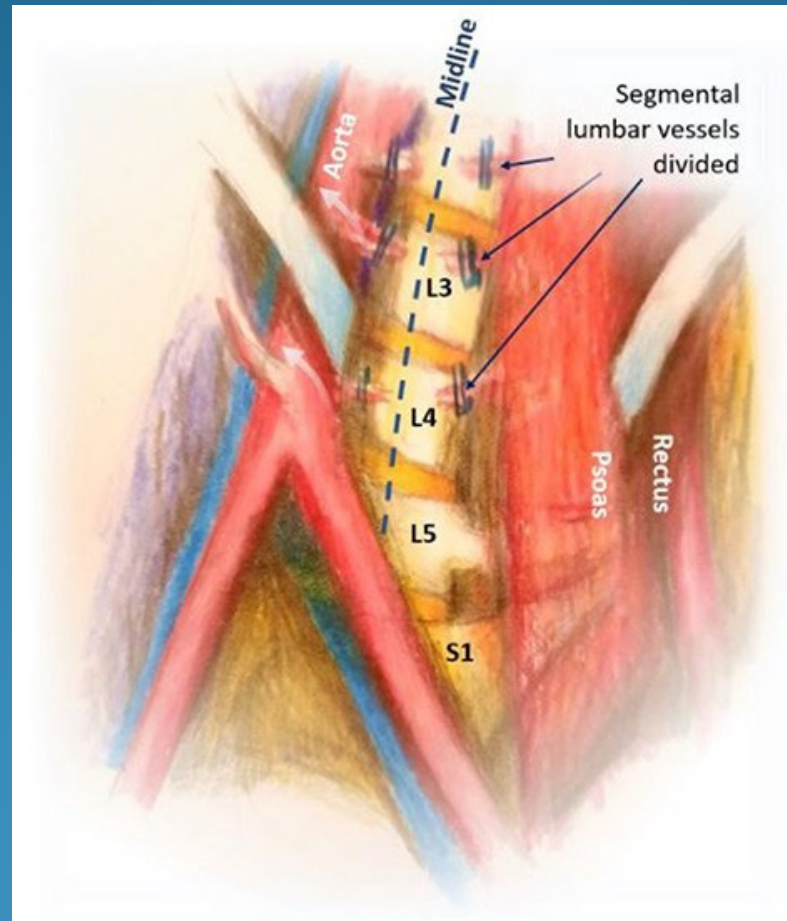
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Division of iliolumbar, lumbar and median sacral vessels; exposure of L5-S1

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Anterior Lumbar Spine Exposure



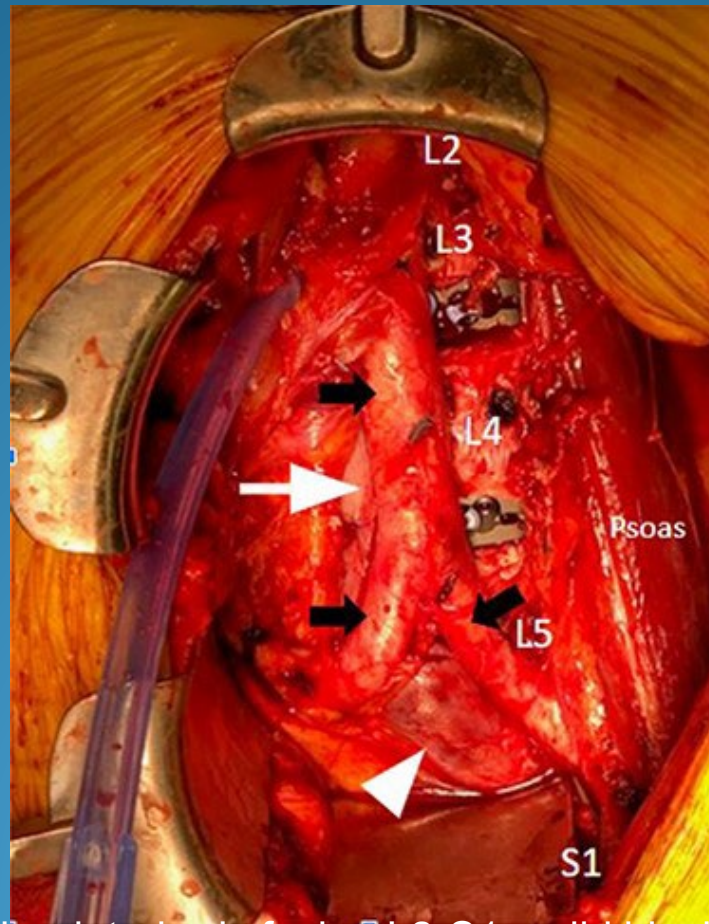
Mobilization of the aorta and IVC with exposure of the spine.

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Anterior Lumbar Spine Exposure

- INSERT VIDEO HERE

Anterior Lumbar Spine Exposure



anterior lumbar interbody fusion L2-S1; solid black arrow, top: aorta; solid

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- Complications
- Ileus (2%)
- Wound Infection (1%)
- Retrograde Ejaculation/Delayed Ejaculation (1%)
- Neurologic Problems/pain/numbness etc. (1%)

Anterior Lumbar Spine Exposure

- Complications
- Surgical site infection
- Venous thromboembolism
- Ureteral Injury/bowel injury
- Durotomy
- Misplaced screws
- Hardware malfunctions

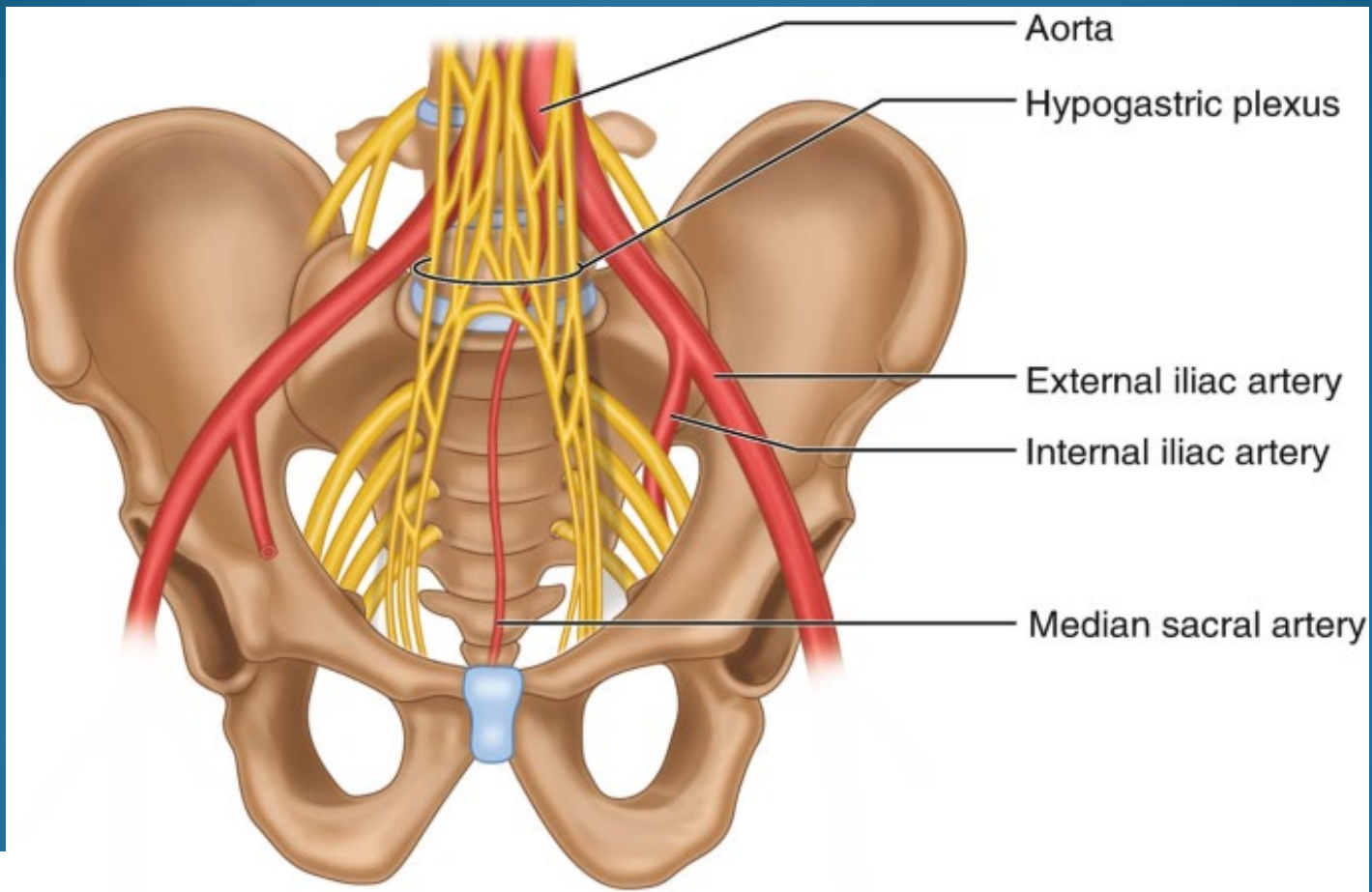
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- Retrograde Ejaculation(RE):
- Semen enters bladder instead of emerging through the penis during orgasm
- Patients may reach sexual climax but might ejaculate very little or not produce any semen from the penis

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- Delayed Ejaculation (DE):
 - DE (Delayed Ejaculation) following ALIF/LLIF higher than that of any other lumbar spine surgeries
 - DE estimated to affect 1% of males after ALIF
 - L4-L5 and L5-S1 are the most common levels
 - 2 phases of ejaculation(emmision and expulsion)-both receive input from the sympathetic and parasympathetic systems in the lumbosacral regions via the hypogastric plexus

Anterior Lumbar Spine Exposure



Anterior Lumbar Spine Exposure

- Retrograde Ejaculation(RE)/Delayed Ejaculation(DE):
- Pathophysiology thought to be due to injury of the superior hypogastric plexus which lies along the anterior spine at L5 just anterior and inferior to the aortic bifurcation
- Hypogastric plexus is routinely manipulated during an anterior approach to the lower lumbar region

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Medications Used to Treat RE:

- Imipramine (Antidepressant)
- Midodrine (alpha-adrenergic activity)
- Chlorpheniramine and Brompheniramine
- Pseudoephedrine (Sudafed)- converts 25% to antegrade ejaculation; stimulates alpha-adrenergic bladder neck activity

Anterior Lumbar Spine Exposure

- Medications Used to Treat DE:
- Cabergoline- dopamine agonist; pro-sexual neurotransmitter; study data is limited
- Bupropion- dopamine and NE reuptake inhibitor; study data shows some beneficial effects
- Alpha₁-adrenergic receptor agonists (pseudoephedrine, ephedrine, midodrine, imipramine)- widely used to treat DE and anejaculation; limited success (12%-50%)
- Yohimbine: alpha₂-adrenergic receptor antagonist; may be useful but double blind studies needed
- Buspirone: mixed agonist/antagonist at both 5HT_{1a} and DA₂ receptor sites; small numbers of studies with no definitive conclusion
- Oxytocin: CNS neuropeptide produced by the posterior pituitary gland; wide variety of functions including sexual activity and penile erection and ejaculation; no conclusive studies
- Bethanecol: muscarinic receptor agonist; case reports exist and one randomized double-blind study; doses of 10-20 mg PRN or 30-100mg BID have shown effect

The drug treatment of delayed ejaculation; *Transl Androl Urol* 2016 .Aug;5(4):576-591. Ibrahim A. Abdel-Hamid, Moustafa A. Elsaied, Taymour Mostafa

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Table 1

Drug treatment for delayed ejaculation

Drug	Proposed mechanism	Dose	Timing	Common side effects
Testosterone	Correct hypogonadism	T solution 2%	Applied once a day, at the same time each morning	Pain, redness, swelling, gum or mouth irritation, breast pain, cough
Cabergoline	Dopamine agonist on D2 receptors; activate the 5-HT _{2B} receptors	0.5 mg twice/week	at bedtime	Nausea, drowsiness, cardiac valve regurgitation and heart failure
Bupropion	Dopamine (DA) and norepinephrine (NE) reuptake inhibitor	150–300 mg/day	In the morning	Palpitations, urinary frequency, blurred vision, chest pain, agitation, psychosis
Amantadine	Facilitates presynaptic dopamine release and inhibits dopamine reuptake post-synaptically	As needed 100–400 mg; daily 75–100 mg	For 2 days before sex; twice or TID	Nausea, dizziness, depression, anorexia, hallucinations, compulsivity, hypotension, abnormal dreams, headache, constipation/diarrhea, arrhythmias
Cyproheptadine	Antiserotonergic properties	2–16 mg	1–2 hours before sex; daily at bedtime	Sedation, impaired concentration, nausea, dizziness, urinary retention, photosensitivity, rash, abdominal pain, fatigue
Midodrine	α_1 -adrenergic receptor agonists	7.5–30 mg	As needed 30–120 min before sex; daily TID	Dysuria, paresthesia, rigors, pruritus, piloerection, rash
Imipramine	α_1 -adrenergic receptor agonists	25–75 mg	Daily at bedtime	Dry mouth, constipation, abdominal pain, blurred vision
Ephedrine	α_1 -adrenergic receptor agonists	15–60 mg	1 hour before sex	Nausea, headache, dizziness, insomnia, hypertension,

The drug treatment of delayed ejaculation; Transl Androl Urol. Aug; 2016 5(4):576-591. Ibrahim A. Abdel-Hamid, Moustafa A. Elsaied, Taymour Mostafa

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- We know that performing anterior spinal surgery in men leads to certain difficulties, such as retrograde ejaculation. What we do not understand is the impact that such surgery can have specifically on women.
- Preliminary results have shown that up to 40% of our patients have changes in their menstrual cycle, and roughly 30% have changes in their sexual activity after anterior spinal surgery.
- Placement of incisions on the abdomen has a far higher impact on women's body image and sexual health

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- QUESTIONS...