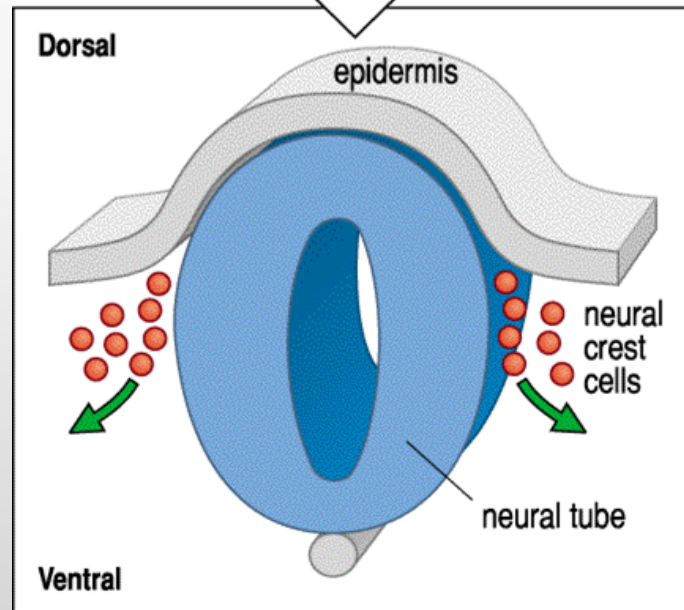
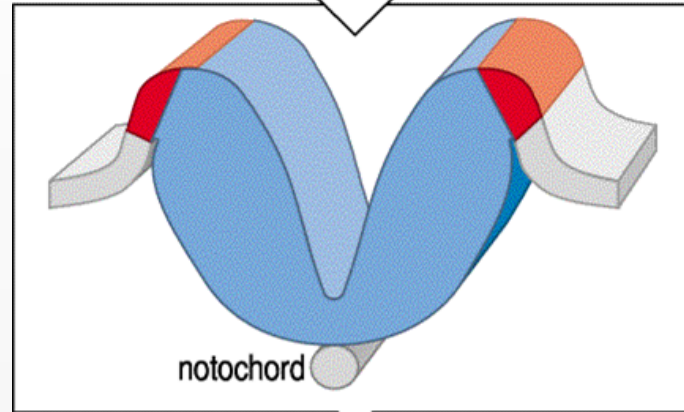
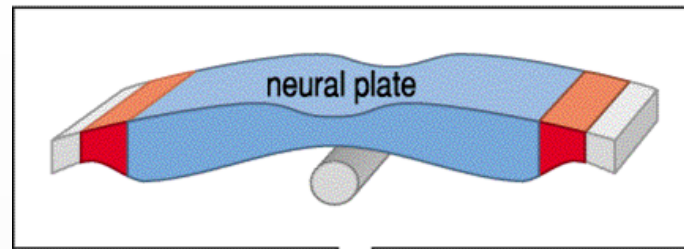


SACRAL DIMPLE



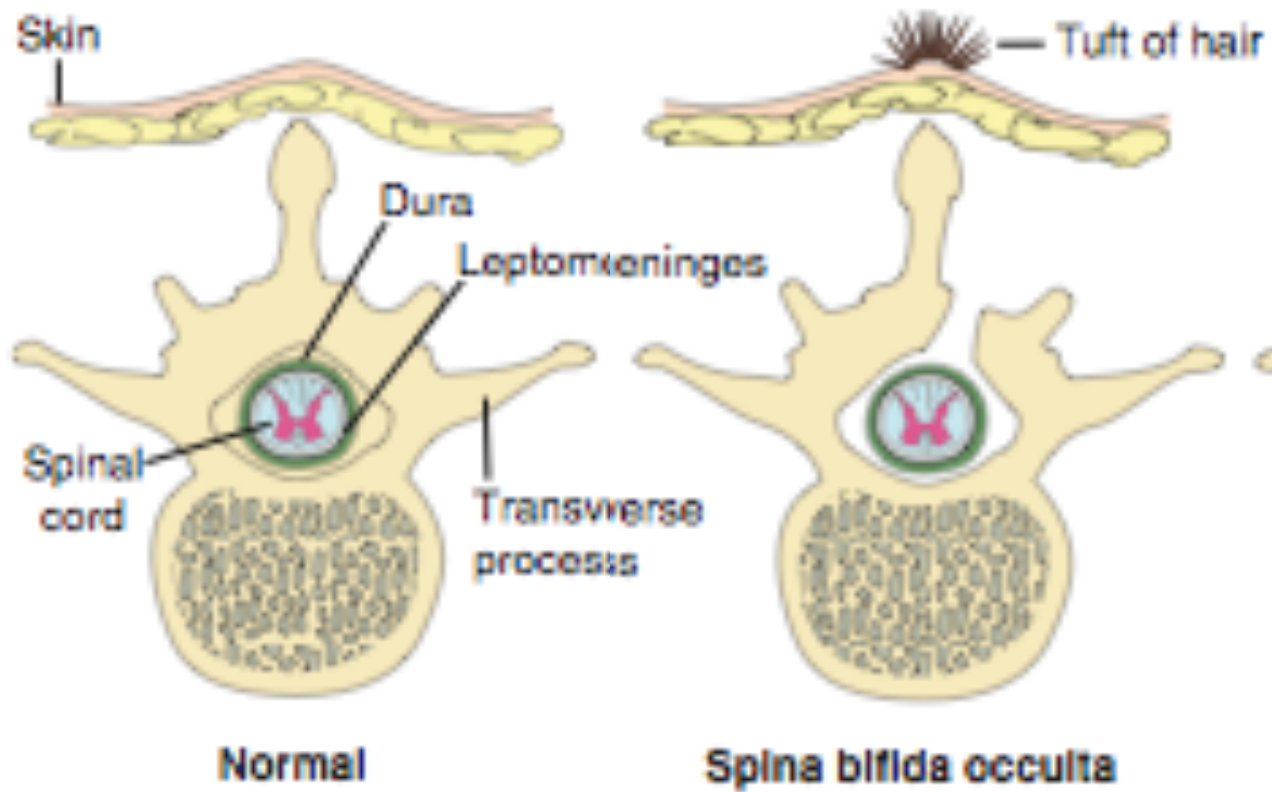
Harish CHANDRAN

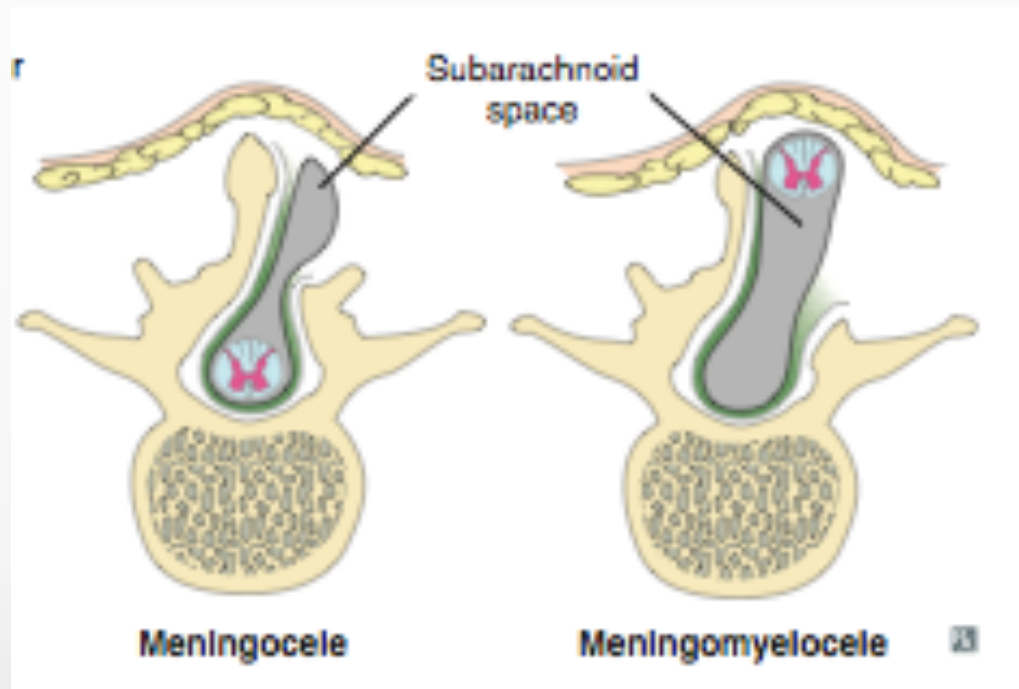
Birmingham Children's Hospital



- embryogenesis of congenital dermal sinus tracts proposes that they arise through faulty disjunction of the neuroectoderm from the overlying cutaneous ectoderm between the third and eighth week of gestation
- with the highest frequency (75%) in the lumbar and lumbosacral region
- There is no apparent timeframe for an asymptomatic lesion to later become symptomatic.

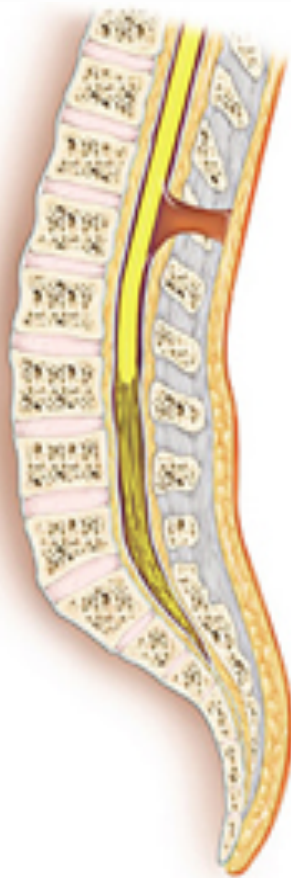




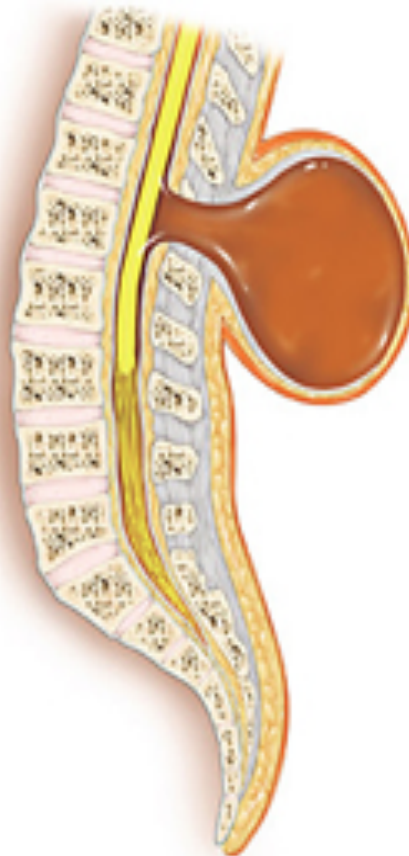




Normal Spine



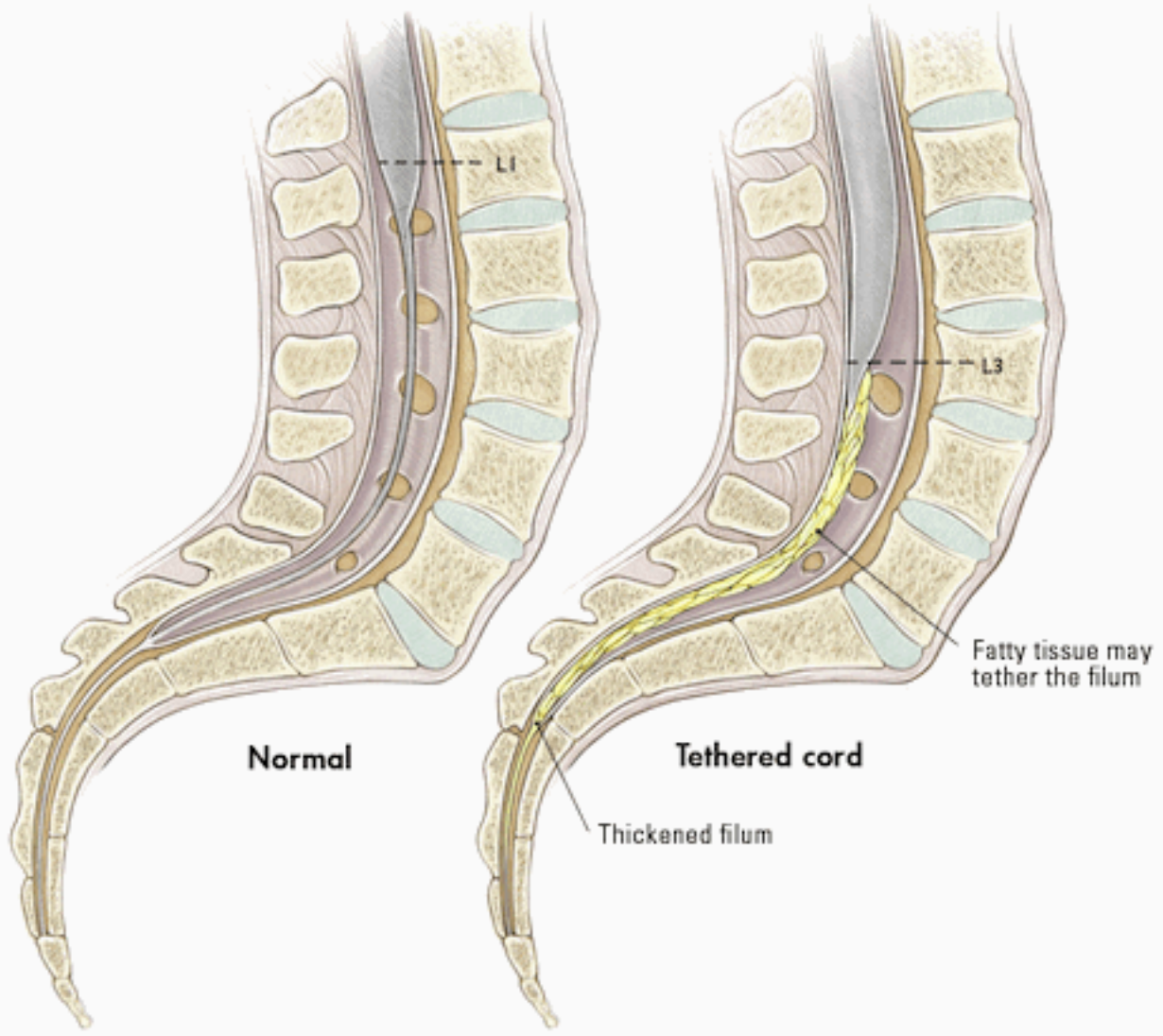
Spina Bifida Occulta

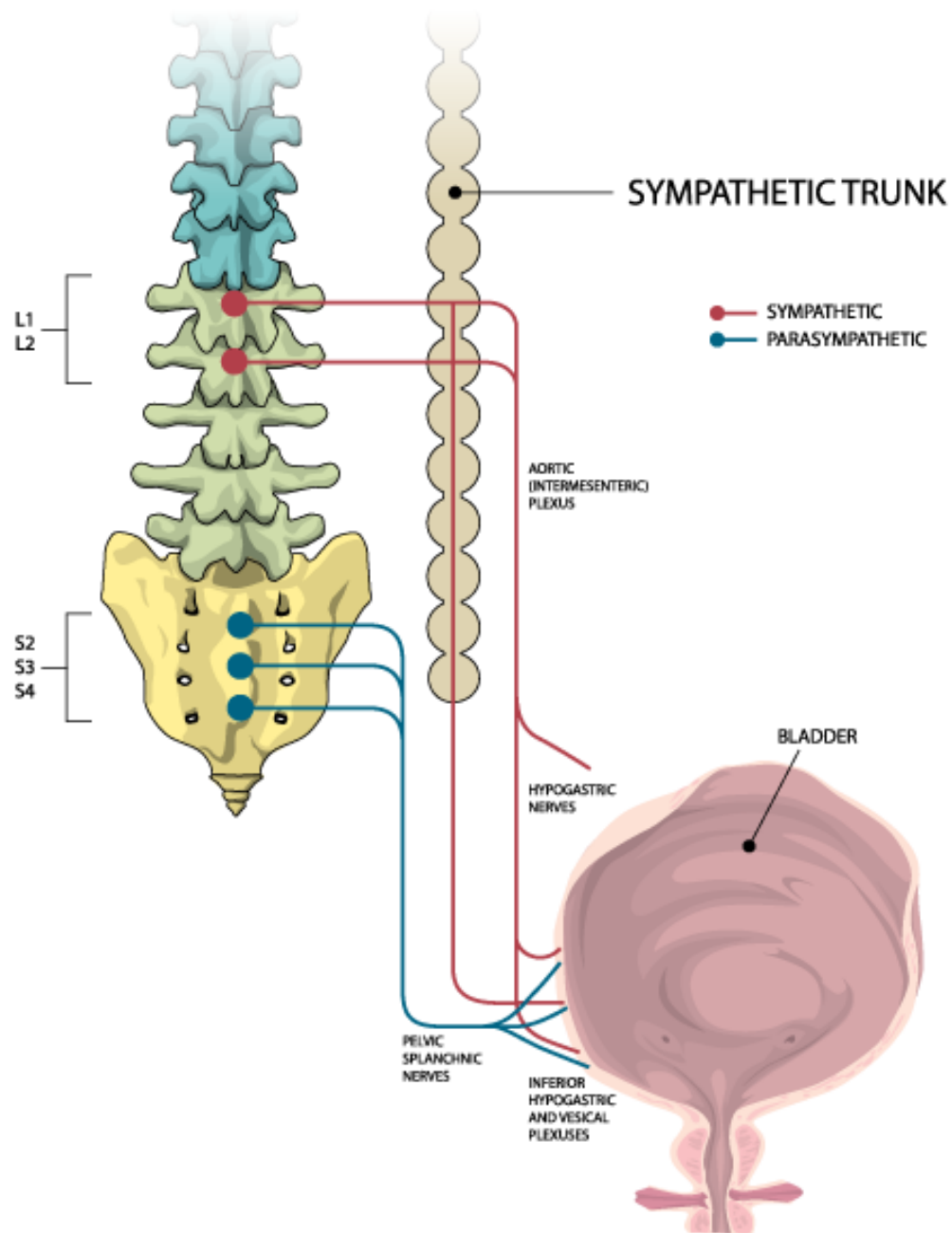


With Meningocele



With Myelomeningocele

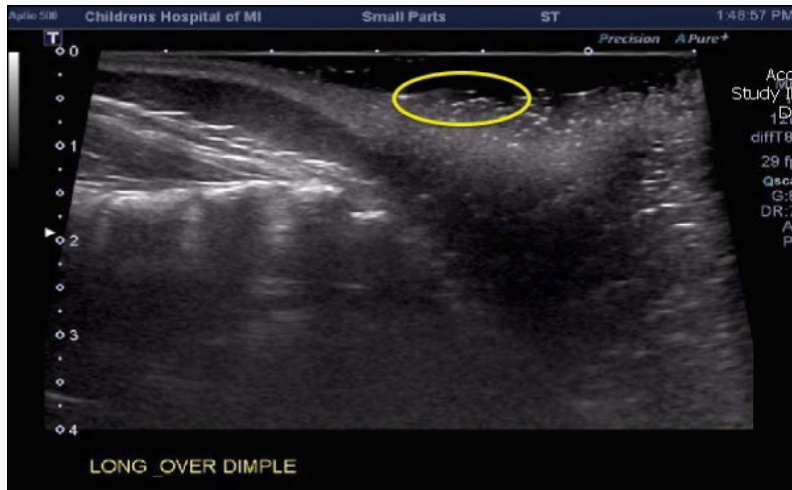




Why are we worried by sacral/
coccygeal dimples and pits?

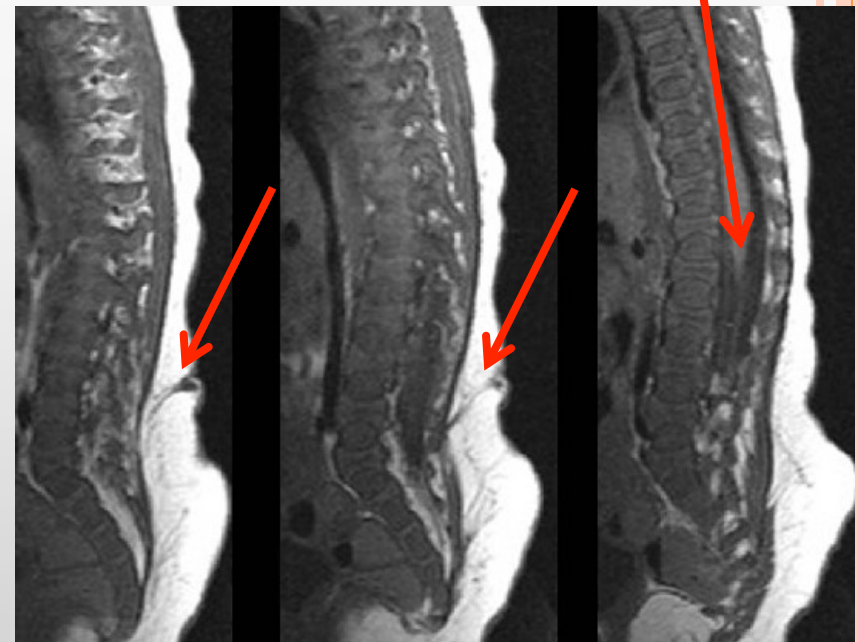


Sacral Dimple: no underlying spinal dysraphism
US shows conus, CSF and dural lining
separate from sacral dimple (encircled in yellow)



Sacral Dimple with a tract: Dermal Sinus tract
MRI shows extension of a tract from the
skin dimple to the dural margin.

Dermal sinus tract **Conus**



DEFINITION:

Sacral dimples occur in the sacral area as small depressions or pits in the skin, most with a visible floor.

A coccygeal pit is a very low lying dimple with the pit pointing towards the coccygeal tip.

Dimples can also occur higher up above the gluteal cleft.

- These lesions are more likely to be associated with discolouration of skin and a tuft of hair within it.
- Although the vast majority is a simple dimple, these may need to undergo further evaluation.



INCIDENCE

- The incidence of the dimple related “true” sinister lesions:
- **Spinal dysraphism** is only about 1 in every 2,500 births;
- **dermal sinuses** occurs in 1 of 2,500 births.
- **spinal lipoma** occurs in 1 of 4,000 births;
- ***Simple dimples are very frequent and most do not need treating***



DORSAL SPINAL SINUS TRACTS

associated with *five* major problems in children.

1. Tethering of the spinal cord : bladder and bowel dysfunction,
2. Bacterial meningitis
3. Aseptic (chemical) meningitis
4. Compression of the spinal cord or nerve roots from a dermoid cyst.
5. Diastematomyelia



TEST !



Pic 1



Pic 2



Pics 3



Pics 4



Pic 5



Pic 6



Pic 7



Pic 8



Pic 9



LITERATURE REVIEW



Pediatric Annals, 43:3 March 2014,
SL BLOCK, University of Louisville, Kentucky.

The Enigmatic Sacro-Coccygeal Dimple: To Ignore or Explore?

Review of literature :

cutaneous sacral stigmata, most of which are below the intra-gluteal crease, occur in as many as 4.8% of all children

Yet the incidence of the “true” problematic lesions related to these dimples, such as spinal dysraphism, is only about 1 in every 2,500 births



Do we investigate or not?

“terrifying the parents by this *potential* newborn problem.”

“You mean my baby could become paralyzed, never obtain bladder control, or may require major neurosurgery on the spinal cord?”



TOP TIP!

Conclusion:

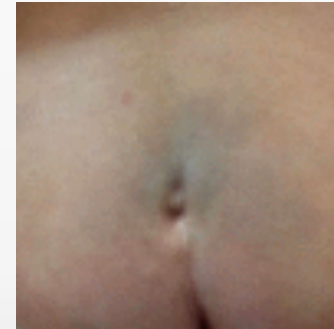
Recommend MRI for any sacral dimple that is

> 5mm in depth

> 25mm from anus

Covered by hair

Base not visualised,



With other cutaneous stigmata

Or with abnormal neurology.



“SIMPLE” SACRAL DIMPLES



MANAGEMENT OF SACRAL DIMPLES DETECTED ON ROUTINE NEWBORN EXAMINATION: A CASE SERIES AND REVIEW

Summary:

simple sacral dimples are innocuous.

unless they are *large*,(>5mm)

located farther away from the anus,(>25mm)

or in association with other cutaneous stigmata.



PEDIATRICS. 2000 MAY;105(5):E69.

WEPRIN BE¹, OAKES WJ.

CHILDREN'S MEDICAL CENTER OF DALLAS, DALLAS, TEXAS, USA.

COCCYGEAL PITS.

Controversy regarding the evaluation and management of cutaneous defects in the coccygeal region exists.

Literature review + their own series : Studied over 1500 babies,

CONCLUSIONS : Simple intergluteal dorsal dermal sinuses (dimples/pits) without other cutaneous findings do not require radiographic or surgical evaluation and treatment



TOP TIP!

< 5mm

> 25 mm from anus

Base visualised,

No other cutaneous manifestations,

No neurology



AJR AM J ROENTGENOL. 1998 DEC;171(6):1687-92.

KRISS VM¹, DESAI NS.¹DEPARTMENT OF DIAGNOSTIC RADIOLOGY, ALBERT B. CHANDLER MEDICAL CENTER, UNIVERSITY OF KENTUCKY, LEXINGTON USA.

OCCULT SPINAL DYSRAPHISM IN NEONATES: ASSESSMENT OF HIGH-RISK CUTANEOUS STIGMATA ON SONOGRAPHY.

The incidence of cutaneous stigmata in the *healthy* neonate study population was **4.8%**.

207 neonates with **216** cutaneous stigmata

180 dimples(74%)

None of the neonates with only a *simple* midline dimple had spinal dysraphism.



36 **other** cutaneous stigmata (e.g., hemangiomas, hairy patches, masses, tails) : 14 (**40%**) had spinal dysraphism.

Eight (**40%**) of 20 **atypical** (>5mm, >25mm from anus, + other features) dimples were positive for spinal dysraphism

6 of 9 (**66%**) with **multiple** stigmata had SD.



Is spina bifida occulta associated with lower urinary tract dysfunction in children?

158 children with LUT symptoms,

Plain x-ray : 57 (36%) had spina bifida occulta,

However, *no spinal cord abnormalities* on MRI !

There was *no direct causal relation* between SBO and lower urinary tract dysfunction.

SBO is probably a *coincidental finding* and its true significance in this cohort was not established.



TALE OF CAUTION!



World J Clin Pediatr. 2013 Aug 8; 2(3): 26–30.

[Mohammed Mostafa](#), [Nehad Nasef](#), [Tarik Barakat](#), [Amany K El-Hawary](#), and [Hesham Abdel-Hady](#)

Faculty of Medicine, Mansoura University Children's Hospital, Mansoura 35516, Egypt

Acute flaccid paralysis in a patient with sacral dimple.

A dermal sinus tract is often diagnosed together with *sacral dimple* with skin signs, local infection, meningitis, abscess, or abnormal neurological examination.

Case report of a 4 mo girl presenting with acute flaccid paralysis, MRI showed paraspinal subdural abscess .

Surgical exploration showed a tract leading to a sacral dimple.



SIMPLE DIMPLE RULES

The following parameters define which sacral dimples are *high risk*

1. Larger than 5mm in size.
2. Located more than 25 mm cephalad to the anal verge.
3. Associated with overlying cutaneous markers:
 - True hypertrichosis, or hairs within the dimple
 - Skin tags.
 - Telangiectasia or hemangioma
 - Subcutaneous mass or lump.
 - Abnormal pigmentation.
 - Bifurcation (fork) or asymmetry of the superior gluteal crease



SIMPLE DIMPLE RULES!

the depth of the tract is also probably irrelevant, unless associated other dimples or cutaneous abnormality (does not include cafe- au lait, Mongolian spots).

Thus, the odds of missing any pathology hiding behind a coccygeal dimple seem quite remote.

S.L.BLOCK, *Pediatric Annals*, Mar 2014



[Arch Pediatr](#). 2015 Dec;22(12):1298-301. doi: 10.1016/j.arcped.2015.09.001.

[Zanello M](#)¹, [Zerah M](#)¹, [Di Rocco F](#)².

¹Service de neurochirurgie pédiatrique, hôpital Necker-Enfants Malades, 149, rue de Sèvres, 75015 Paris, France.

Sacral dimple: What form of management is best?

“A sacral dimple measuring less than 5mm, within 25mm of the anus on the median line, with no other cutaneous anomaly, does not require any complementary examination”

“However, any cutaneous depression in the sacrolumbar region not respecting these criteria must be considered as an occult dysraphism until proved otherwise”.



Dermoids and dermal sinus tracts of the spine.

“Regardless of the depth, those **below** the top of the intergluteal crease end blindly and *never* extend intraspinally”.

“A high index of suspicion must be maintained for all dimples **above** the intergluteal fold *despite a normal examination or neuroradiologic studies*”

Conservative management of dermal sinuses is not justified, and these lesions should be electively resected at the time of diagnosis.

Surgery in advance of deficits maintains normal neurologic function, and children can develop unencumbered by infection, motor, or bladder paralysis.



- **Ultrasonography** is the screening modality of choice for the infant with atypical sacral dimples
- **MRI** study if presence of an intra-spinal mass, abnormal position or shape of the conus, or a thick filum



- Skin dimples over the spine commonly referred to as **sacral dimples** are common minor congenital anomalies, estimated to occur in 3-8% of children.
- possibility of **occult spinal dysraphism (OSD)**.
- Skin abnormalities accompany 50-80% of OSD.



SIMPLE DIMPLE VS SINISTER DIMPLE

	Simple Dimple	Not so Simple
Location	Within natal cleft	Above natal cleft
	Within 2.5 cms of anal orifice	
Appearance	Superficial	Deep
	Floor of the dimple can be seen	No floor seen (?)
	No discolouration	Discolouration of skin, strawberry angioma
	No tuft of hair	Tuft of hair
	No drainage	Fluid drainage or debris
	No fibrous connection or stalk Fibrous stalk directed towards coccyx tip	Fibrous stalk directed cranially
Family History	None	Previous dimples, spina bifida, neural tube defects

A FEW MORE





“Mongolian spot” with hairs : investigate?





Midline dimples, above gluteal cleft

Investigate?

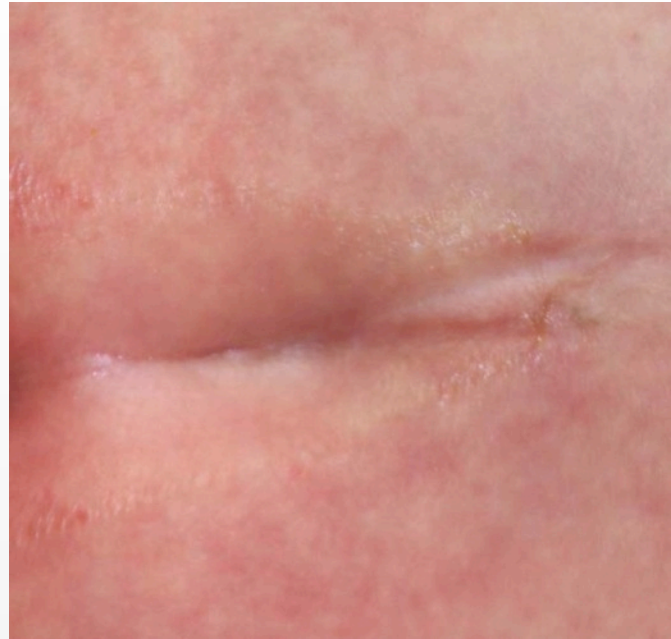
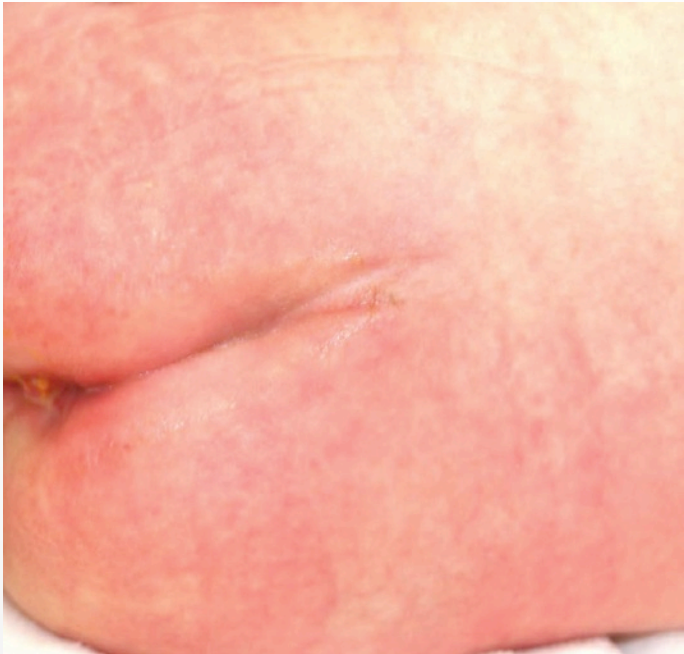




11-day old male, deep dimple, but within 2.5 cms of anus !

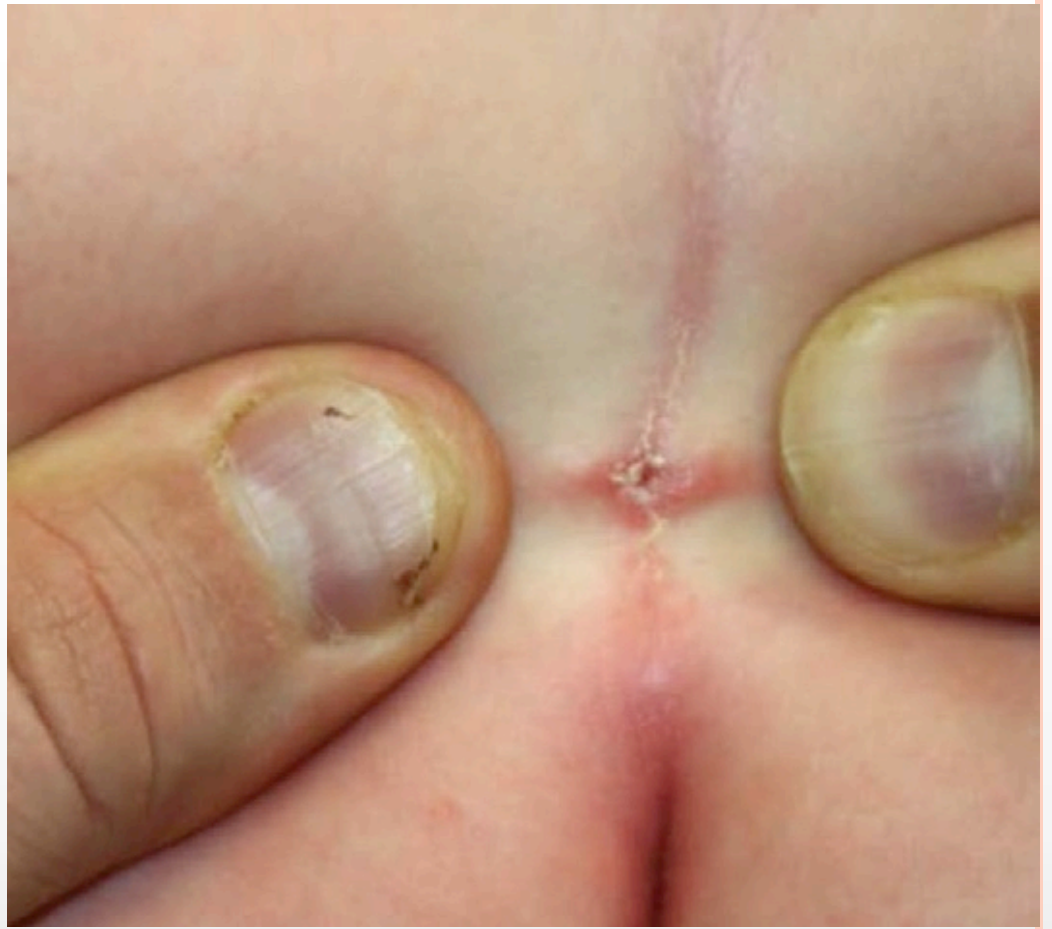
What determines further action : depth or distance?





10 days old, no neurology, bifid cleft with sacral pit.





4 week old male, no neurology, no other stigmata.
Investigate?





Shallow dimple : would you investigate?





