Abdominal cutaneous reflex

Part of Neurological examination

Important reflex for the management of Spinal Cord Injury.

The abdominal cutaneous reflex: scratching one quadrant of abdomen with a sharp object causes contraction of the underlying abdominal musculature, causing umbilicus to migrate toward that quadrant. Upper abdominal reflex: T8–9. Lower abdominal reflex: T10–12. This is a cortical reflex (i.e., reflex loop ascends to the cortex, and then descends to abdominal muscles). The presence of this response indicates an incomplete lesion for cord injuries above the lower thoracic level.

Reflex changes in Multiple sclerosis: Hyperreflexia and Babinski signs are common. Abdominal cutaneous reflexes disappear in 70–80%.

An abdominal reflex is a superficial neurological reflex stimulated by stroking of the abdomen around the umbilicus. It can be helpful in determining the level of lesion in a neurology case. Being a superficial reflex, it is polysynaptic.

Make the subject lie down comfortably on a bed in the supine position. Uncover the abdomen and see that his abdominal muscles are well relaxed. With a blunt object gently stroke on the abdominal skin from lateral to the medial aspect in all the four quadrant. Observe the contraction of the abdominal muscles resulting in deviation of umbilicus towards the area stimulated. A normal positive response usually involves a contraction of the abdominal muscles, and the umbilicus moving towards the source of the stimulation.

Thoracic 7th -12th segments are involved

Absent Abdominal reflex

Abdominal reflex is remarked either present or absent. An absent response can be physiological. Physiological absent response can be due to obesity, tolerance, children, multiparous lax abdominal wall. Pathological absence can be due to

Multiple Sclerosis

Motor Neurone Disease

Neurogenic Bladder

Brown-Séquard syndrome

Chiari Malformations

Evolutionary Significance

The local contraction of the abdominal muscles to an abdominal sensory stimulus was to protect the internal viscera from damage.

Examination of the superficial abdominal reflexes in patients thought to have idiopathic scoliosis has been considered possibly beneficial for deciding who should have magnetic resonance imaging to rule out syringomyelia. The purpose of a study was to determine what is normal for this examination. Thirty normal adolescents and 35 normal young adults underwent testing of the superficial abdominal reflexes and the patellar and Achilles deep tendon reflexes. Each test was repeated two times. Thirty-nine (60%) subjects had bilaterally equal abdominal reflexes. Nine (14%) subjects had asymmetric reflexes, and seven (11%) subjects had no reflex in at least one quadrant. No subjects had reflexes present on one side and absent on the other. Ten (15%) subjects had absence of the abdominal reflexes in all quadrants. Sixteen (25%) subjects had extinguishing of the reflex in at least one quadrant as the test was repeated. Eleven of these had asymmetric or partially absent reflexes initially. In contrast, the patellar and Achilles reflexes were more consistent. The patellar reflexes were bilaterally equal in 52 (85%), asymmetric in eight (13%), and absent in one (2%). The Achilles reflexes were bilaterally equal in 59 (97%), asymmetric in one (2%), and absent in one (2%). The finding of abdominal reflexes consistently present on one side and consistently absent on the other side did not occur in our normal subjects. This finding might warrant further workup if found in a patient with scoliosis. Other variations in abdominal reflex testing such as asymmetries, absent in some quadrants, and absent in all quadrants are fairly common in normal subjects [1)].

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Yngve D. Abdominal reflexes. J Pediatr Orthop. 1997 Jan-Feb;17(1):105-8. PubMed PMID: 8989711.