

## Usage Of Ultrasonography In Spine Surgery

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Intraoperative imaging allow for minimally invasive access to tackle a lesion and preserve the function of the surrounding tissues. Neuronavigation systems have been among the most prominent and successful of these imaging tools but it is also very costly. Intraoperative ultrasound (IOUS) is gaining popularity and its significance as an adjunct in spine surgery is becoming more evident but is mostly underused due to inadequate training. IOUS has a good effect in achieving surgical goal. Common indications are such as hematoma evacuation, tumor excision or biopsy and drainage or excision of abscesses. IOUS was used for pre-surgical and post-surgical assessment of the intraspinal structures or lesions. IOUS also aided well in localizing the lesion prior to dura opening and deciding the extent of resection when close proximity to vital structures is suspected. IOUS also reduces unnecessary laminectomy levels and clearly demonstrate the extent of decompression. The introduction of color Doppler flow images improved the view from standard grey scale images and widened IOUS usage for vascular lesions. The only disadvantage faced was the factor of operator dependency as proper training and familiarization is required prior to usage of IOUS. Daily usage of IOUS and familiarization is crucial with normal structures before approaching pathological lesions. The normal structures of the spinal canal that can be appreciated include the dura-arachnoid layer, subarachnoid space, denticulate ligament, ventral and dorsal roots. Although the usage of IOUS is commoner in cranial surgery; it has been under emphasized in its usage for spine surgery despite its relative cost effectiveness. Ultimately, IOUS guides us to achieve a safe and maximal resection.