Radiographic cassette

A radiographic film cassette is a rectangle or square plastic or metallic container used to hold x-ray films (exposed or unexposed) and intensifying screens in close and uniform contact with one another.

The assessment of global spinal sagittal alignment requires standing long-cassette anteroposterior and lateral radiographs; however, spine surgeons routinely rely only on short-segment imaging when evaluating seemingly isolated lumbar pathology. This may prohibit adequate surgical planning and may predispose surgeons to not recognize associated pathology in the thoracic spine and sagittal pathhlogical spino-pelvic alignment.

Maggio et al. used a case-based survey questionnaire to evaluate if including long-cassette radiographs led to changes to respondents' operative plans as compared with their chosen plan when cases contained standard imaging of the involved lumbar spine only.

A case-based survey was distributed to AOSpine International members that consisted of 15 cases of lumbar spine pathology and lumbar imaging only. The same 15 cases were then shuffled and presented a second time with additional long-cassette radiographs. Each case required participants to select a single operative plan with 5 choices ranging from least to most extensive. The cases included 5 “control” cases with normal global spinal alignment and 10 “test” cases with significant sagittal and/or coronal malalignment. Mean scores were determined for each question with higher scores representing more invasive and/or extensive operative plans.

Of 712 spine surgeons who started the survey, 316 (44%) completed the entire series, including 68% of surgeons with spine fellowship training and representation from more than 40 countries. For test cases, but not for control cases, there were significantly higher average surgical invasiveness scores for cases presented with long-cassette radiographs (4.2) as compared with those cases with lumbar imaging only (3.4; $p = 0.002$). The addition of long-cassette radiographs resulted in 82.1% of respondents recommending instrumentation up to the thoracic spine, a 23.2% increase as compared with the same cases presented with lumbar imaging only ($p = 0.008$).

This study demonstrates the importance of maintaining a low threshold for performing standing long-cassette imaging when assessing seemingly isolated lumbar pathology. Such imaging is necessary for the assessment of spinopelvic and global spinal alignment, which can be important in operative planning. Deformity, particularly positive sagittal malalignment, may go undetected unless one maintains a high index of suspicion and obtains long-cassette radiographs. It is recommended that spine surgeons recognize the prevalence and importance of such deformity when contemplating operative intervention [1].

1)
Maggio D, Ailon TT, Smith JS, Shaffrey CI, Lafage V, Schwab F, Haid RW Jr, Protopsaltis T, Klineberg E, Scheer JK, Bess S, Arnold PM, Chapman J, Fehlings MG, Ames C; AOSpine North America; International Spine Study Group. Assessment of impact of standing long-cassette radiographs on surgical planning for lumbar pathology: an international survey of spine surgeons. J Neurosurg Spine. 2015 Jul 31:1-8. [Epub ahead of print] PubMed PMID: 26230421.

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