



AMERICAN CHIROPRACTIC ASSOCIATION



AMERICAN CHIROPRACTIC COLLEGE OF RADIOLOGY AND COUNCIL ON DIAGNOSTIC IMAGING

GUIDELINE FOR THE USE OF MUSCULOSKELETAL VIDEOfLUOROSCOPY

These guidelines address issues common to clinical practice. They are not rules, but guidelines that attempt to define the principles of practice that should generally produce high quality radiologic care. Adherence to these guidelines will not assure a successful outcome in every clinical situation. These guidelines are not intended to establish a legal standard of care or conduct, and deviation from one of these guidelines does not, in and of itself, indicate or imply that such practice is below acceptable level of care. The ultimate judgment regarding any specific procedure or course of conduct must be made by the chiropractic physician/doctor of chiropractic in light of all circumstances presented by the individual clinical setting. These guidelines are a consensus of procedures and conduct taught in CCE accredited chiropractic institutions and the practice of radiology by professional members of the ACCR and CDI.

The American Chiropractic College of Radiology (ACCR) and the Council on Diagnostic Imaging's (CDI) committee on Scientific Affairs have determined that the utilization of videofluoroscopy is a useful imaging modality for the demonstration of musculoskeletal intersegmental joint dysfunction. Other musculoskeletal pathologies are usually better demonstrated by alternative imaging methods.

The guidelines and standards recommended herein presuppose that an appropriate patient history, clinical examination, plain film radiographs and additional diagnostic modalities have been performed to exclude pathology that might contra-indicate or impact the videofluoroscopy examination.

Objective of Musculoskeletal Videofluoroscopy:

Musculoskeletal videofluoroscopy is used for the evaluation of suspected intersegmental joint dysfunction which has not been adequately demonstrated by other methods.

Clinical and Radiographic/Diagnostic Imaging Indications:

Musculoskeletal videofluoroscopy should be performed following appropriate history, clinical examination, including diagnostic studies, and a reasonable period of conservative management (see below).

Acute/Subacute:

Videofluoroscopy is rarely indicated in the acute patient. Unusual circumstances may exist wherein there is inconclusive or equivocal evidence of intersegmental joint dysfunction from plain film radiography, CT, MRI or other appropriate imaging procedures. In those instances, videofluoroscopy may be appropriate, however, the study should not be performed until cessation of restrictive muscle spasm which prohibits evaluation of joint function.

Chronic:

1. Persistent signs and symptoms or unsatisfactory response to care as appropriately documented by the treating physician. (Generally accepted as exceeding 12 weeks.)
2. Suspected persistent intersegmental joint dysfunction.
3. In circumstances where there is inconclusive or equivocal evidence of intersegmental joint dysfunction from plain film radiography, CT, MRI or other appropriate imaging procedures.

Delayed Treatment:

Videofluoroscopy may be indicated when treatment has not been utilized or has been delayed and where inadequate explanation of findings of clinically evident joint dysfunction is documented.

Radiographic Signs of Intersegmental Joint Dysfunction:

The following signs may be helpful in the selection of patients for musculoskeletal videofluoroscopy in those cases with persistent signs and symptoms following an appropriate conservative management (12 weeks):

- a. hypermobility
- b. hypomobility
- c. aberrant motion
- d. instability
- e. aberrant coupling
- f. paradoxical motion
- g. evaluation of spinal arthrodesis

Indications for Musculoskeletal Videofluoroscopy Reevaluation:

As with all radiographic procedures, reexamination should only be accomplished if the patient fails to respond to clinical management, or there is exacerbation of symptoms, or progression of signs which are the result of intersegmental joint dysfunction.

The examination should be limited to the area in question, using only those positions and maneuvers which previously demonstrated the abnormality.

Contraindications:

1. Sufficient information regarding the intersegmental joint dysfunction has been obtained by other diagnostic procedures to establish appropriate case management.
2. Pregnancy.
3. Instances where motion is detrimental to the patient's well being:
 - a. recent fractures
 - b. dislocations
 - c. pathological processes that weaken restraining structures or osseous architecture.
 - d. severe neurological deficit
4. Restrictive muscle spasm.

Relative Contraindications:

Patient's inability to cooperate due to physical or mental impairment.

TECHNICAL PROTOCOL FOR CERVICAL SPINE VIDEOfLUOROSCOPY

Cervical Spine Examinations:

A. Minimum Examination. (Includes the following, but must be preceded and supported by clinical and radiographic findings.) A minimum of three repetitions should be performed and **all fluoroscopic exposure must be recorded digitally or videotaped.**

1. Lateral projection.
 - a. nodding
 - b. full range "forced" flexion and extension.
 - c. relaxed flexion and extension.
 2. Oblique right and left full range "forced" flexion and extension.
- B. Additional Examinations (as indicated): Right and left lateral flexion (open mouth and lower cervical).
- C. Optional Examination: Unsupported cross table lateral flexion/extension.

D. Check Ligament (ALAR) Examination

1. Lateral view, nodding.
2. Right and left lateral flexion open mouth.
3. Passive Stress views. Cases of incomplete tear can only be demonstrated by a passively forced lateral flexion maneuver.

Lumbar Spine Examinations:

Videofluoroscopy, of the lumbar spine is discouraged due to patient dosage and decreased image quality. Patient selection is limited by size. The examination should not be performed on individuals exceeding 14cm in the A-P position and 32cm in the lateral position.

A minimum of two repetitions should be performed and **all fluoroscopic exposure must be digitally recorded or videotaped**. The patient should be examined with the pelvis stabilized to prevent other than spinal motion.

1. Lateral projection in flexion and extension.
2. A-P right and left lateral bending.

Examination of Thoracic Spine and Sacroiliac Articulations:

Videofluoroscopy examination of the thoracic spine or sacroiliac articulations is presently, considered to be of little diagnostic value and is discouraged.

MINIMUM EQUIPMENT RECOMMENDATIONS:

1. 125 kVp and 1-3 mA.
2. Image intensifier with a minimum 12000:1 gain.
3. 4.5 mm of total filtration Al equivalency.
4. 6" minimum FOV with a freely moving gantry.
5. 9" minimum FOV without a freely moveable gantry, (3 planes of movement).
6. Automatic Brightness Control must be utilized.
7. Digital recording or video recording equipment should have:
 - a. slow motion playback
 - b. pause mode
 - c. 4 recording head minimum

MINIMUM STANDARDS FOR DOCTORS OF CHIROPRACTIC PERFORMING FLUOROSCOPY

Legislative

1. License to practice in state where procedure is performed.
2. Radiation generating equipment registered with appropriate local and/or state authorities.
3. Compliance with local, state, and federal rules and regulations.
4. Documented policies and procedures for monitoring and evaluating the effective management, safety, and operation of the imaging equipment. The quality control program should be designed to minimize patient, personnel and public radiation risks and to maximize the quality and consistency of the diagnostic information.
5. At least annually, unless mandated more frequently by local or state regulations, equipment performance should be monitored and a quantitative dose determination should be conducted by a medical radiation physicist.
6. A written radiology report shall be generated for each clinical radiologic procedure.

Education

1. Doctor of Chiropractic Degree from CCE accredited college.
2. Post graduate training in radiation physics.
 - A. Thirty (30) hours of documented post doctoral training under the supervision of a medical radiation physicist. Training should include, but not be limited to, the following:
 - i. X-ray production and interaction with matter.
 - ii. Equipment including radiographic and fluoroscopic detection, image intensifier, and video-recording.
 - iii. Film-screen combination and spot film devices.
 - iv. Factors that affect image quality, including grids, compression and stabilization devices, dose to patient and dose to personnel.
 - v. Processing and development of films.
 - vi. Principles of radiation protection.
 - vii. Effects of radiation and dose determination.
3. The Doctor of Chiropractic should be familiar with the disease processes for which the patient is being evaluated and must understand the many manifestations of these diseases as well as variants of normal anatomy and congenital anomalies.
4. Documented training in performing the procedures under the supervision of doctor or scientist with expertise in the procedure.
5. All initial training should be accredited by a CCE Chiropractic college.
6. Doctors should obtain a minimum of 10 CME hours biannually. Topics in the area of radiation physics, biology, protection, various technical aspects of performing radiologic procedures, interpretation of procedures and documentation. CME can be accredited by a variety of sources, including CCE accredited chiropractic colleges, ACCR, AAPM, ACMP, ACR, CDI, RSNA, and other similarly accredited medical groups or institutions.

COMMENTARY

With the publication of these guidelines and subsequent adherence to these tenets by operators/users, the ACCR no longer considers musculoskeletal videofluoroscopy investigational.

Caution and certain avoidances must nonetheless be observed with the use of videofluoroscopy. Among these are those ill-advised practices which include, but are not limited to the following:

1. Musculoskeletal videofluoroscopy is never appropriate in clinical practice to visualize the spinal adjustment or manipulation, nor is it efficacious to employ Videofluoroscopy as a "pre and post" manipulation.
2. Musculoskeletal videofluoroscopy must never be performed without digitally recording or videotaping of the procedure. This ensures accurate recording of pertinent information and time of exposure.
3. Musculoskeletal videofluoroscopy serves only as an ancillary diagnostic imaging procedure.
4. Musculoskeletal videofluoroscopy shall never be utilized as a replacement for conventional radiographic procedures.
5. Musculoskeletal videofluoroscopy shall never be employed as a screening imaging device.

Laboratories as well as referring practitioners are responsible for the necessary documentation and protocols as stated above, regardless of the source of referral for the examination.

Practitioners utilizing videofluoroscopy will adopt rigorous measures to ensure the radiation health and safety of both patient and operator. This includes limiting the examination to the area of clinical complaint, along with the application of appropriate radiation protective devices inclusive of, but not limited to, lead gowning and filtration.

Prior to the individual or institutional utilization of videofluoroscopy, the operator(s) shall be adequately prepared by didactic training and practical experience to assure competency of application and interpretation of both the technical and professional component of videofluoroscopy.

Ratified by the ACA House of Delegates, June 1991.

Updated and adopted by the ACCR at the Workshop in Minneapolis, MN, 2005