MATERIAL AND METHODS
MATERIAL AND METHODS

The material covers all cases (between age group 10 - 50 years) suffering from clinically suspected chronic low backache and also expected person might be having radiologically positive for low backache, attending O.P.D. and the patients admitted in the ward of M.L.D. Medical College & Associated Hospital, Jhansi (U.P.).

A careful detailed history and physical examination of each case was elicited with particular emphasis on the following points:

- Name of the patient,
- Age of the patient,
- Sex,
- Occupation,
- Socio-economic status.

Chief complaints and history:

1. Pain
   (a) Duration
   (b) Site
   (c) Character
   (d) Relation to movement
   (e) Relation to weather
2. History of trauma
3. Past history
4. Family history
5. Dietary history

Clinical Examination:

1. General Examination:
   (a) General condition
   (b) Pulse
   (c) Blood pressure
   (d) Temperature
   (e) Respiration rate
   (f) Pallor
   (g) Icterus
   (h) Cyanosis
   (i) Clubbing
   (j) Oedema
   (k) Lymphadenopathy

2. Respiratory system
3. Cardio-vascular system
4. Central nervous system
5. Abdominal examination
6. Local Examination (Lumbo-sacral spine)
   (i) Inspection
      (a) Gait
      (b) Attitude/Deformity (Kyphosis/Scoliosis)
      (c) Swelling
   (ii) Palpation
      (a) Tenderness
      (b) Swelling
(iii) Percussion
(iv) Movements
(v) Rigidity of spine
(vi) Measurements

Investigations:

Blood (MBN, TLC, DLC, ESR)
Urine (Sugar, Albumin)

Radiological Investigations:

(a) X-ray of lumbo-sacral vertebral joint
   (i) Antero-posterior view,
   (ii) Lateral view,
   (iii) Oblique view.
(b) Myelography (if required)

TECHNIQUES OF RADIOGRAPHY

(1) ANTERO-POSTERIOR (Basic) View:

The patient is placed in the supine position and carefully centralized on the X-ray couch, with the film displaced towards the head to accommodate the oblique projection of the X-ray beam.

CENTRE

At the level of anterior superior iliac spine, the centre is in the mid-line with the tube angled 8 - 10 degrees towards the head. The degree of angulation required
will vary according to the type and sex of subject. Factors are 70 kV with 80 mAs. The film distance should be 36" with grid.

(2) Lateral View:

The film taken laterally, with the patient in both the erect and the horizontal positions, show differences in the alignment of the lumbo-sacral region due to posture. The same differences are shown according to whether the patient is lying with the figure extended full length or flexed.

It is important to adjust the patient to the true lateral position, with the mid-line of the lumbo-sacral region parallel to the film. In the horizontal position, a foamed sponge roll under the mid-lumbar region will have the desired effect, and a smaller pad between the hip and couch will be appreciated by the patient. Flexion of hips and knees, with the raised limb supported on sand bags, is essential for immobilization.

In the erect position, the shoulder rests against the film support, the foot being placed apart to give balance.

Center:

Three inches forward from and at the level of the fifth lumbar spinous process. The factors are kilovoltage 90 - 120 with 150 - 40 mAs respectively. The film distance should be 36" with grid.
The great density of this region may prohibit an excessive focus film distance when necessary to compensate for vertebral to film displacement unless a high power unit is available, but at 36" using a localizing cone and fast screens, satisfactory results are obtained.

Radiograph is included to show high kilovoltage technique, 120 kVp, 30 mas, and radiograph to show the effect of using low kilovoltage, 65 kVp, 110 mas.

For the larger subject, high kilovoltage is essential for this region although the effect of scattered radiation is inevitable. A compromise is found at 100 kVp.

The third radiograph confirms the value of the lateral projection for this pathological condition.

(3) Oblique View:

When the desired information could not be taken from lateral projection, the oblique position has been performed. The patient is rotated 45 degrees from the supine position and is supported and immobilized with plastic sponges or balsa wood blanks and sand bags.

CENTRE:

Approximately 3 inches medially and 1 inch above the anterior superior iliac spine on the raised side. The factors are kilovoltage 65 with 75 mas. The film distance should be 36" with grid.
(4) MYELOGRAPHY:

Technique

The contrast media of choice is isosamyl semioaque or myodil. The lumbar area is most simply examined by large volume of isosamyl containing 240 mg of I/ml with the feet dependent. For dorsal area isosamyl containing 240 mg of iodine per al is injected with the patient in lateral decubitus position with a firm pad beneath the head and neck to tilt the vertebrae towards the ceiling and with the head of the table dependent so as to pool the contrast medium in the gravity of a dorsal curve.

For myelographic study, spinal tap has been performed using a needle no longer than 20 gauge. It is not necessary to remove the contrast at the end of the procedure so that if desired, the needle may be withdrawn immediately after contrast injection. Films have been taken, in antero-posterior, oblique and lateral projections and where possible decubitus views has been taken. Films have been also taken in the lateral projection with the patient both prone and supine, and the lower dorsal spinal cord will be examined with the patient in the supine position.

INTERPRETATION OF PHASES:

The following radiographic details were taken into account:-
1. Loss of lumbar lordosis: i.e. straightening of lumbar curve at the lower lumbar segments.

2. Inter-vertebral disc space: was measured in lateral x-ray. It is the distance from middle of one vertebra to the middle of another vertebra.


4. Presence and absence of osteophytes.

5. Height of the body of vertebra.

6. Axis of vertebral alignment.

7. Measurement of sagittal diameter of spinal canal.

   In lateral film, it is from middle of posterior surface of body to the point of fusion of laminae to spinous process.

8. Axis of inter-vertebral foramina. In oblique views by drawing a transverse line in middle of each foramina.


10. Congenital fusion of vertebrae.


12. Any congenital anomalies.
Photograph - 1
Showing antero-posterior radiography of lumbo-sacral spine.

Photograph - 2
Showing lateral radiography of lumbo-sacral spine.

Photograph - 3
Showing oblique radiography of lumbo-sacral spine.
AIMS OF THE STUDY

1. To investigate various causative factors of low backache in age group from 16 to 50 years.

2. The incidence of various common causes in the low backache in Indian population as compared to Western Society.