# THE RADIOLOGIC FEATURES OF EARLY, UNCOMPLICATED CHRONIC BRONCHITIS

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The posteroanterior (P-A) chest x-ray was examined in chronic bronchitis for diagnostic radiographic patterns.

Ninety-one patients from a survey program were defined as chronic bronchitis (CB) (n=47), normal (n=36) or CB and chronic pulmonary emphysema (CPE) (n=8), based upon history, physical, quantitative sputum and pulmonary functions. Only adequate standard inspiratory P-A chest x-rays were selected, coded, and read single blind, employing these features: (A) Bronchial wall: (1) Tubular radioluciencies limited by parallel lines or unilateral arterial markings, (2) Irregular luminal or intraluminal densities, (3) "Wall" > intraluminal width. (B)

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Vascular: (1) Distortion of clear contour by irregular haziness or radiolucencies, or of architecture by distribution, crowding, size, angulations and taperings, (2) Right descending pulmonary artery width. (C) Secondary parenchymal: fibrotic nodules, honey-combing, patchy consolidations and reticulations. (D) Others: hyperlucency ± bullae, pleural, cardiac, and thoracic cage changes. Observations were graded as mild (1+) to severe (4+). The radiological diagnosis of CB by features of A and/or B was then correlated with the clinical diagnosis.

Results: (Table I). In 47 clinical CB patients, there was x-ray agreement in 57%, but 25.5% were read as normal. Among those clinically normal, 50% of the x-rays concurred while 41% were interpreted as CB. Age and coexisting medical factors were of similar frequency in both groups and could not account for the false positive observations. The CB and CPE group, although suggestive, is inadequate for interpretation.

Thus, in selected cases of chronic bronchitis 57% exhibited the radiological findings outlined, these features overread on normal x-rays limit their diagnostic usefullness. It should be stressed that these CB patients were graded as mild to moderate disease (mean clinical severity = 1.2); furthermore, selected radiographic features may be more specific.

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TABLE I

CORRELATION BETWEEN CLINICAL DIAGNOSES AND P-A CHEST X-RAY INTERPRETATION*

| | CLINICAL DIAGNOSIS | | | | | |
|---|---|---|---|---|---|---|
| | CHRONIC BRONCHITIS | | NORMAL | | CB and CPE | |
| X-RAY DIAGNOSIS | N | % | N | % | N | % |
| Chronic Bronchitis (CB) | 27 | 57.4 | 15 | 41 | 3 | 37.5 |
| CB and Chronic Pulmonary Emphysema (CPE) | 4 | 8.5 | 2 | 6 | 3 | 37.5 |
| Normal | 12 | 25.5 | 18 | 50 | 1 | 12.5 |
| Bronchial Asthma | 1 | 2.2 | 1 | 3 | 0 | |
| CPE | 3 | 6.4 | 0 | 0 | 1 | 12.5 |
| CB and Bronchial Asthma | 0 | 0 | 0 | 0 | 0 | |
| TOTAL | 47 | | 36 | | 8 | |

* % values indicate incidence of x-ray interpretation within the designated clinical group

N Number of patients