Endotoxin shock was made in guinea pigs to understand the initial pathogenesis in connection with the oxygen radicals from leukocytes. The intraperitoneal injection of LPS E. coli endotoxin induced rapid leukopenia, and leukocytosis appeared at 24 hours of injection. The cell differential counts of bronchoalveolar lavage fluid revealed a significant increase in eosinophil at 10 and 30 minutes. There was also a significant increase in neutrophil at 24 hours. The activity of superoxide dismutase in the lung tissue decreased at 10 minutes of injection and remained low for 24 hours. Malonaldehyde, a lipid peroxidation metabolite by oxidants, gradually increased and reached a maximal value at 60 minutes of injection. The lung damage was histologically characterized by a rapid appearance of the alveolar edema and scattered infiltration of granulocytes. These suggested the endotoxin injection induced activation of granulocytes recruited from peripheral blood to cause oxidant reaction in lung tissues, which finally produced acute lung injury.