

ABSTRACT

Objectives: To detect the effect of cigarette smoking on semen parameters, detect the morphological abnormalities by scanning electron microscope (SEM) and to detect the ultra structural changes by using transmission electron microscope (TEM).

Setting: Outpatient clinic of Dermatology and Venereology Department, Sohag University Hospitals and Electron Microscope Unit at Sohag Faculty of Science.

Patients: Ninety healthy men; sixty of them were heavy smokers and thirty subjects were nonsmokers.

Interventions: Clinical examination, routine semen analysis and detection of sperm morphological abnormalities by SEM and TEM.

Results: Percentage of normal sperm motility and morphology were significantly higher in nonsmokers than smokers. The percentage of abnormalities detected by SEM was significantly higher than those detected by light microscope. Moreover the types of abnormalities as (acrosomal deficiency, cytoplasmic extrusion mass, long and coiled tail) were shown to be significantly higher in smokers than nonsmokers. By TEM, all the ultra structural abnormalities were shown to be significantly higher in smokers than nonsmokers. These abnormalities included: Head abnormalities as nuclear abnormalities (binucleated head, nuclear inclusions, nuclear vacuolations) and acrosomal abnormalities. Nuclear abnormalities usually were found associated with acrosomal abnormalities. Tail abnormalities as abnormalities in the axonemal skeleton, mitochondrial sheath and outer dense fibers.

Conclusion: Cigarette smoking has adverse effects on the sperm morphology and the ultra structure of spermatozoa.

Keywords: Spermatozoa, SEM, TEM, Smokers.