

Ergotism: ergot and circulatory bacterial morphology



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Body System affected: Lymphatic/Immune system, Digestive, Circulatory

Bacterial Morphology: They are fungi that resemble small mushrooms in which the perithecia are embedded in the capitata tip.

Reservoir: grains (specifically rye) and grass contaminated with ergot

Mode of Transmission: Ingestion

Symptoms of Illness: Symptoms include constriction of arteries and veins, rapid, weak pulse, precordial distress or pain muscle pain, weakness, lameness, gangrene, Headaches, dizziness, depression, confusion, drowsiness, unconsciousness, panic, hallucinations, delusions and psychosis.

At Risk Population: Anyone that has ingested plant material containing ergot alkaloid

Morbidity: Ergotism is extremely rare today, primarily because the normal grain cleaning and milling processes remove most of the ergot so that only very low levels of alkaloids remain in the resultant flours. In addition, the alkaloids that are the causative agents of ergotism are relatively labile and are usually destroyed during baking and cooking.

Pathogenesis: Ergot causes vasoconstriction by direct action on the muscles of the arterioles, and repeated dosages injure the vascular endothelium.

These actions initially reduce blood flow and eventually lead to complete stasis with terminal necrosis of the extremities due to thrombosis. A cold environment predisposes the extremities to gangrene. In addition, ergot has a potent oxytocic action and also causes stimulation of the CNS, followed by depression. Ergot alkaloids inhibit pituitary release of prolactin in many

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mammalian species, with failure of both mammary development in late gestation and delayed initiation of milk secretion, resulting in agalactia at parturition

Prevention/Control: Rotate cereals and grasses with nonsusceptible crops for one year or longer. The ergot sclerotia usually do not survive in the soil for more than one year. Therefore, summer fallow or crop rotation to a non-cereal crop for at least one year will help reduce ergot. Deep-plow fields which have a severe ergot infestation to bury the sclerotia. The ergot sclerotia will not germinate if buried more than 1 inch deep. Plant only ergot-free seed to avoid introducing or re-introducing the fungus into the field. Eradicate or prevent wild grasses from reaching heading in fields, rocklands, headlands, ditches, and fence rows. Mow wild and escaped grasses and pastures, or graze pastures before they flower, to prevent ergot infections. Resistant commercial varieties of wheat, barley, rye or cultivated grasses are not available. However, some differences among varieties may occur, and those with long flowering periods may be more frequently infected.

Additional Comments : Ergotism caused persecution of witches in Salem
Many people are aware of the tragedy that occurred in Massachusetts from 1692 to 1693. A hundred people and forty-one were arrested for practicing witchcraft. Nineteen were hanged, four died in prison, and one, Giles Corey was pressed to death with stones for refusing to recognize that the court had no right to judge him. The colony of Massachusetts was experiencing the fervor of the Puritans' religious fanatics. Minister Samuel Parris daughter and niece became delirious, displayed seizures, said the mysterious skin sensations, speech delivered confusing and sometimes appeared to be in a
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trance. Then others exposed the same symptoms. The villagers found that they were victims of witchcraft.