

megaesophagus, diverticula, vestigial aortic arches or foreign bodies) and regurgitation is accomplished with open mouth and fixed mandible. In cricopharyngeal achalasia, food is returned immediately by way of frequent short movements of the tongue and the mandible.

A thorough plain film study should be evaluated for suspicious lesions prior to an esophagram. But in all cases, contrast radiology should be performed since these conditions can be evaluated most effectively and efficiently with an esophagram.

Esophagoscopy can be attempted with the patient under anesthesia, or if further evaluation is required, the patient can be referred to a university hospital for fluoroscopic examination.

### References

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# Clinical Pathology Review

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Analysis of the blood from a 5 year old, female Holstein cow revealed the following leukogram:

WBC (4,000-12,000)	6,000
Band neutrophils (0-120)	1,080
Segmented neutrophils (600-4,000)	1,320
Lymphocytes (2,500-7,500)	2,880
Monocytes (25-850)	720
Eosinophils (0-2,400)	0

The cow had freshened 3 days before the blood sample was taken. One quarter of the mammary gland was swollen and hard. A vaginal discharge was evident.

What is your interpretation of the leukogram?

### Interpretation:

This is an inflammatory leukogram (i.e. there is an increased tissue demand for neutrophils). The major feature of an inflammatory leukogram is a significant left shift (i.e. increased numbers of immature neutrophils). In the bovine, WBC counts are typically in the normal range or slightly above normal during inflammatory episodes. In peracute inflammations and/or overwhelming bacterial infections, WBC counts may be below normal and immature WBC's may outnumber mature WBC's. Possible causes of the tissue demand for neutrophils are mastitis and/or metritis.

### References

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