ECVP/ESVP Summer School in Veterinary Pathology

Summer School 2009 – Clinical Pathology C270-07

Dog, Mongrel Spayed male, 10yo. Non specific clinical signs. The CBC is reported below:

Eritrociti x 10⁶/µl	1,62	5,5-8,5
Eritrociti nucleati (%	0,00	rari
Eritr. nucleati x 10³/µl	0,00	rari
Reticolociti (%		<1,5
Indice di prod. retic. (RPI)		>1<2

Morfologia eritrocitaria

Hb (g/dl)	7,3	12-18
Ht (%)	14,8	37-55
RDW	16,90	12-17
MCV (fl	91,36	60-77
MCHC (%	49,32	32-36
MCH (pg)	45,06	19-24

Proteine plasmatiche (g/dl)		4,9-7,9
Fibrinogeno (g/dl)		<0,2
Icterus Index		2-5

					6-19,5
Leucociti x 10³/µl			400,50		6-19,5
Neutrofili (%)	2,00	60-70	(x 10³/µl)	8,01	3-11,5
Band neutrofili (%	0,00	<3	(x 10³/µl)	0,00	<0,2
Eosinofili (%)	0,00	2-10	(x 10³/µl)	0,00	0,1-1,2
Basofili (%)	0,00	rari	(x 10³/µl)	0,00	rari
Linfociti (%)	0,00	12-30	(x 10³/µl)	0,00	1-4,8
Monociti (%)	98,00	3-10	(x 10³/µl)	392,49	0,1-1,5
Non class. (%)	0,00	0	(x 10³/µl)	0,00	0

Morfologia leucocitaria

Piastrine x 10³/µl	76,00	200-500
Stima piastrinica	na	A = adeguata
MPV (fl)	8,5	8,5-13
PCT (%)	0,1	0,2-0,4
PDW	11,7	8-18

Altri esami effettuati

citofluorimetria cd18+ cd45+, cd14+, cd11b+, cd49d + (50%), NSA 9,3%, CD34 3%, Cd4 20,2%

Smear description:

Cellularity: RBCs and platelets appear severely decreased, WBCs dramatically increased

Erythron:

RBCs are pale (leptocytosis) and show a slight anisocytosis in the absence of polychromasia

Thrombon

The rare platelets detectable on the smear (rare clumps) are normal

Leukon

All the cells are pleomorphic elements of suspected myeloid origin. Specifically, about one third of the cells are granulocytes (mature or bands) or activated monocytes. Mature neutrophils do not show abnormal cytoplasms (i.e. no toxic signs are present), but sometimes signs of dysplasia such as asynchronous nucleocytoplasmic maturation or donut shaped nuclei are present. The remaining 2/3 of the cells are large Myeloid precursors of both the granulocytic and of the monocytic lineage. Specifically, cells with cytoplasmic features similar to mature neutrophils, except for a slight basophilia, but with bean shaped

nuclei, most likely classifiable as metamyelocytes, and large cells with round to indented nuclei, basophilic cytoplasms frequently characterized by a finely purple granulation, and nuclei with fine chromatin, often with 1 or 2 inconspicuous nucleoli, likely identifiable as myelocytes and promyelocytes. Rare mitoses are also detectable.

Hematological diagnosis:

Severe normocytic normochromic non regenerative anemia, thrombocytopenia and extreme neutrophilic and monocytic leukocytosis with atypical and/or immature circulating cells

Comment:

The results of the CBC and the morphology of the cells are highly consistent with a leukemic process. Theoretically, such a high number of cells associated with a severe left shift could also be consistent with a “leukemoid” response (i.e. an activation of the myeloid lineage as a consequence of inflammation). Nevertheless, the percentage of blasts is too high to support this hypothesis, also on the basis of the relative paucity of cells at intermediate stage of maturation (i.e. blasts). A bone marrow analysis to confirm the presence of leukaemia should be suggested, although it could also provide non conclusive results. Based on the cell morphology (presence of both mature and immature cells) on the cell lineages (both neutrophils and monocytes – and their precursors – are present) and on the result of flow cytometry, a diagnosis of chronic myelomonocytic leukaemia can be made.

SCORING:

Cellularity	0,5 pts
RBCs	0,5 pts
WBCs	
Mature and band neutrophils (description)	1 pt
Myeloid precursors	
Identification	0,5 pt
Description of cytoplasms	0,5 pt
Description of nuclei /mitoses	0,5 pts
Hematological diagnosis	1 pt
Comment	
Comment on inflammation	0,5 pt
Comment on blasts (diagnose leukaemia and suggest BM)	0,5 pt
Comments on flow cytometry	0,5 pt
Diagnosis of CMMol	0,5 pt
TOTAL	**6,5 pts**