

INTISARI

IDENTIFIKASI NEWCASTLE DISEASE BERDASARKAN UJI HAMBATAN HEMAGLUTINASI DAN UJI AGAR GEL PRESIPITASI SERTA GAMBARAN MIKROSKOPIS BERBAGAI ORGAN BURUNG MERPATI (*Columba livia*) YANG MENUNJUKKAN GEJALA TORTIKOLIS

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Tortikolis adalah gejala klinis penyakit yang sering dijumpai pada unggas dan burung, yang pada prinsipnya dapat disebabkan oleh beberapa agen penyebab. Diagnosis penyakit secara akurat diperlukan dalam upaya pengendalian penyakit. Penelitian ini bertujuan untuk mengetahui gambaran mikroskopis organ burung merpati yang menunjukkan gejala tortikolis dan untuk identifikasi *Newcastle disease* (ND).

Tiga ekor burung sakit dengan gejala tortikolis digunakan sebagai sampel penelitian dengan kode burung merpati A, B dan C. Pengambilan sampel darah secara intravena pada vena brachialis. *Euthanasia* merpati dengan metode emboli intravena brachialis. Merpati dinekropsi segera setelah *euthanasia* untuk kemudian organ dikoleksi dan disimpan dalam larutan formalin 10%. Di samping itu, otak dan pulmo juga disimpan dalam *Viral Transfer Media* (VTM) untuk isolasi virus. Isolasi dilakukan dengan cara inokulasi telur merpati berembrio yang diperoleh dari merpati yang tidak ada riwayat vaksinasi dan tidak terindikasi ND pada induk. Identifikasi ND dilakukan dengan uji hemaglutinasi dan uji agar gel presipitasi (AGP). Selain itu, perubahan secara mikroskopis pada organ diamati dengan pembuatan preparat histopatologi dengan pengecatan hematoksilin dan eosin, sedangkan titer antibodi serum terhadap virus ND diuji hambatan hemaglutinasi (HI) serologis.

Pemeriksaan histopatologi menunjukkan bahwa merpati mengalami neuritis vagus, trakheitis, pneumonia, *air sacculitis*, hepatitis, pankreatitis, nefritis, jejunoileitis, ileokolitis dan orchitis. Otak ditemukan *perivascular cuffing*. Perubahan degeneratif ditemukan pada hepar dan ginjal. Jantung mengalami miokardial nekrosis, testis mengalami nekrosis tubulus seminiferus dan deplesi ditemukan di area pulpa putih lien. Proventrikulus menunjukkan epitel mukosa yang terlihat memipih, sedangkan organ pulmo ditemukan kongesti. Hasil uji hemaglutinasi lambat titer antigen merpati B sampel asal pulmo adalah 32, sampel asal otak adalah 64, merpati A sampel asal pulmo adalah 2 dan sampel asal otak adalah 2. Hasil uji HI identifikasi dinyatakan negatif infeksi ND, sedangkan identifikasi dengan uji AGP pada semua sampel terhadap antiserum ND menunjukkan positif infeksi virus ND.

Berdasarkan data-data tersebut, diantaranya uji hemaglutinasi, uji AGP, uji HI serologis, lesi embrio hasil inokulasi dan lesi mikroskopis pada berbagai organ, maka dapat disimpulkan bahwa burung merpati dengan gejala tortikolis disebabkan oleh virus ND.

Kata kunci: Tortikolis, lesi mikroskopis, *Columba livia*, *Newcastle disease*

ABSTRACT

IDENTIFICATION OF *NEWCASTLE DISEASE* BASED ON THE HEMAGGLUTINATION INHIBITION TEST AND AGAR GEL PRECIPITATION TEST AND MICROSCOPIC LESIONS OVERVIEW OF THE VARIOUS ORGANS OF PIGEONS (*Columba livia*) THAT SHOW SYMPTOM OF TORTICOLLIS

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Torticollis is a clinical sign of diseases common in poultry and birds, which in principle can be caused by several causative agents. Accurate diagnosis is required in effort to disease control. This study aimed to determine the microscopic conditions of organs of pigeons that suffered from torticollis and identify *Newcastle disease* (ND).

The three pigeons showed symptoms of torticollis were obtained as sample and marked as pigeon A, B and C, respectively. Blood samples collected intravenously from brachial veins. Euthanasia with intravenous brachial embolism. Necropsy was carried out immediately after euthanasia to prevent autolysis. Collected organs were stored in 10% formaldehyde. While brain and pulmonary organs were also collected in *Viral Transfer Media* (VTM) for virus isolation. Isolation of pathogen with inoculation into embryonated eggs obtained from pigeons with no history of vaccination and not indicated ND in the parents. Identification of ND with hemagglutination test and agar gel precipitation test (AGP). Moreover, the observation of microscopical changes in various organs with histopathologic preparation using hematoxylin and eosin staining, while antibody titer against NDV in serum was measured with hemagglutination inhibition (HI) test.

Histopathological examination showed that pigeons was severe neuritis vagus, trakheitis, pneumonia, air sacculitis, hepatitis, pankreatitis, nefritis, jejunoileitis, ileocolitis and orchitis. Perivascular cuffing found in brain. Degenerative changes found in the hepar and ren. Cardiac severe necrotic lesion, testes severe necrosis of seminiferous tubules, and depletion found in white pulp area of spleen. Proventricular tissue showed flattening of the mucosal epithelium, while congestion lesions found in pulmonary tissue. Results of slow haemagglutination test showed the antigen titers of pigeon B are 32 for sample from pulmo origin, 64 for sample from brain origin and antigen titers of pigeon A are 2 for both pulmo and brain samples. Results of haemagglutination inhibition test for identification to detect ND antigen were negative infected by ND, while results of AGP test against NDV were positive infection by ND showed with precipitation formation.

Based on these data, namely hemagglutination test, AGP test, serological HI test, lesions of embryo post inoculation, and microscopic lesions in many organs, it can be concluded that pigeons severe torticollis symptom caused by ND.

Key words: Torticollis, microscopic lesions, *Columba livia*, Newcastle disease