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Clinical and molecular detection of fowl pox in domestic pigeons in Basrah Southern of Iraq

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Abstract

Bird species, particularly poultry and other bird types, including domestic pigeons, are susceptible to fowl pox, a contagious viral disease. The main goal of this study was to validate clinical avipoxvirus diagnoses using molecular analytical methods. The essential components of the investigation were the clinical signs, visible abnormalities, histological changes, and polymerase chain reaction analysis. Twenty out of 120 pigeons had clinical symptoms, which included yellowish crust or nodules near the feet, eyes, and beak. An erosive epidermal lesion and an epidermal acanthotic papular lesion with basal vacuolation were maculopapular evidence associated with significant epidermal hyperkeratosis, as confirmed by histological analysis. In addition, the results showed keratinocyte necrosis beneath the hyperkeratotic epidermal layer, together with superficial and deep dermal perivascular lymphocytic infiltration. In addition, the P4b core protein gene underwent phylogenetic analysis. The sequence analysis results indicated a high degree of similarity across the local strains, with just minor variations observed. Five sample sequences were selected and submitted to the NCBI database. These sequences were identified as OR187728, OR187729, OR187730, OR187731, and OR187732. All the various strains in this research may be classified under clade A of the chicken pox virus phylogenetic classification. This study presents the first description and characterization of pox virus infections in domestic pigeons inside the Basrah governorate.

Keywords: bird pox virus; pigeon pox; polymerase chain reaction; phylogeny

Introduction

Avian pox (AP) is a viral disease that affects birds. The genus *Avipoxvirus* belongs to the subgroup *Chordopoxvirinae* of the *Poxviridae* family of viruses [1]. The genus *Avipoxvirus* has enveloped viruses. The genomes are linear and 300 kb in length. The 12 different species that comprise this family are the canarypox, flamingopox, fowlpox, juncopox, Mynahpox, penguinpox, pigeonpox, psittacinepox, quailpox, sparrowpox, starlingpox, and turkeypox viruses. [2].

More than 230 species of domestic and wild birds are global victims of avipoxviruses. It affects many birds but rarely occurs in waterfowl or shorebirds [3]. These include pets, seabirds, songbirds, upland game birds, chickens, turkeys, and occasionally raptors. In addition, the disease is more prevalent in warm and humid re-