

MOLECULAR DETECTION ON SOME VIRULENCE FACTORS OF *LEISHMANIA MAJOR* IN BABYLON PROVINCE, IRAQ

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ABSTRACT : Cutaneous leishmaniasis is a vector-borne disease caused by obligated Intra macrophage protozoa of the genus *Leishmania*. and it was a major public health problem in some endemic regions. This study includes 50 samples were collected from patients with cutaneous leishmaniasis (Baghdad boil) diagnosed clinically by a dermatologist in Marjan teaching hospital in Hilla city during a period (from September 2018 to end of February 2019), the patients age ranged from (3 years to more than 40 years) the information were collected for each patient includes age, gender, residence in addition to type of lesion duration of lesion and have a treatment or not in questionnaire. All sample cases (50 cases) show positive result to amastigot of leishmania when examined by giemsa stain. The result shows that the highest percentage of infection was recorded in December it was 30% followed by January and February it was (24 and 38%), respectively. The present study shows that the percentage of infection was higher in male than in female, it was 64% in male, while 36% in female. According to age distribution, the results shows the most frequency of cutaneous leishmaniasis was 26% in age group 31-40 years old. Almost cutaneous leishmaniasis patients reside in rural area, so the percentage of infection was 80% in patients reside in rural area while in urban area was 20%. The cutaneous lesion was distributed on patients body such as limbs (upper and lower), face, neck and abdomen the percentage of infection was 74, 20, 2 and 2%, respectively. The results of this study show that the wet type of leishmaniasis was more predominant (76%), while dry type was (24%). The result of molecular study of cutaneous leishmaniasis by nested PCR with specific (CSB XF and CSB XR) as external primer and (13z and LiR) as internal primer, show 12 isolate of *Leishmania* (24%) diagnosis as *L. tropica*, whereas 38 isolates of leishmania (76%) diagnosis as *L. major*. The detection study of virulence gene show, the gene glycoprotein 63 (GP63) was found in all isolates (100%) of *L. major* in addition to cysteine protease (CP) and proteophosphoglycan (PPG) gene also found in 100%.

Key words : *Leishmania major*, virulence factor, PCR.

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INTRODUCTION

Leishmaniasis is a vector-borne infection that is present in the Americas, Africa, eastern Europe, western and central Asia, India and Australia. The genus *Leishmania* includes protozoan parasites that cause several types of human infections ranging from the visceral form to the tegumentary forms (cutaneous, diffuse cutaneous, mucocutaneous and post-kalazar dermal). In addition to humans, animals such as dogs, rodents are also susceptible to *Leishmania* infections (ALmeida *et al*, 2012).

Cutaneous leishmaniasis is the most prevalent form of leishmaniasis and characterized by ulcers in the skin, in exposed parts of the body. Cutaneous leishmaniasis is also known as Delhi boil, Bagdad boil, oriental sore or

Aleppo button However, CL parasite was first found in tissues of Delhi boil in Calcutta. CL leads to deformation of the skin and causes physiological as well as social problems. According to the WHO data, 1 million CL cases develop each year (Bostanci, 2016). Cutaneous leishmaniasis cases were more abundant in winter, with a peak in February. The incidence of infection then started to decline from April and reaches its lowest in July and August (Al-Warid *et al*, 2017).

In Old World leishmaniasis, lesions may present in two distinct types. One is the moist or rural type, a slowly growing, indurated, livid, indolent papule, which enlarges in a few months to form a nodule that may ulcerate in a few weeks to form an ulcer as large as 5 cm in diameter. Spontaneous healing usually takes place within 6 months,