Imported human malaria cluster in a rubber plantation-subdistrict Bertam, Gua Musang, Kelantan

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ABSTRACT

Introduction: Kelantan has the highest number of malaria cases in Peninsular Malaysia in 2022. Human malaria is still a threat in Gua Musang, Kelantan as it is a forested district with conducive climate conditions and ecosystems that support breeding and survival of anopheles species. The number of imported human malaria cases is increasing following the influx of immigrants into Gua Musang's district to fulfil job requirements in plantation areas. The imported human malaria cases present a risk of initiating outbreaks, epidemics, or increasing local transmission levels in high receptivity areas. This study aimed to describe the epidemiology characteristic of imported human malaria clusters that occurred in a rubber plantation and recommend control measures. **Materials and Methods:** A descriptive study was conducted in September 2022. Case was defined as a person with positive Blood Film Malaria Parasite (BFMP) or Polymerase Chain Reaction (PCR) from 27th July 2022 and living/working at a rubber plantation in subdistrict Bertam or those epidemiologically linked with or without malarial symptoms. Case detection among contacts were conducted through active and passive case detection within 2 km radius including BFMP and PCR among contact level 1. Interview, record review, laboratory, environmental and entomological investigation were conducted. **Results:** There were 84 workers in a rubber plantation who resided in 5 blocks (A, B, B1, B2, and C) in Bertam. An imported human malaria cluster was declared on 28th July 2022 after two cases were identified. All 82 contacts were investigated including 72 contacts level-1. There were 8 confirmed cases with BFMP and/or PCR positive. All confirmed cases were male immigrants with mean (SD) aged 31.6 (14.0) years old; 5 (62.5%) cases from Myanmar, 2 (25.0%) cases from Thailand and 1 (12.5%) case from Indonesia. Two cases (25.0%) were detected through passive case detection and remaining cases were through active case detection. Out of 8 confirmed cases, 5 (62.5%) were asymptomatic. Three cases (37.5%) were sub microscopically infected and were asymptomatic. Laboratory results revealed all 8 (100%) cases were positive for *Plasmodium Vivax*; 5 (62.5%) positive BFMP and 3 (37.5%) PCR detected. Gametocytes were detected in 2 cases from Thailand. The overall attack rate was 9.52% (8/84). Specific attack rate according to ethnicity was higher among Thais 13.3% (2/15) as compared to Myanma 12.8% (5/39). Entomological investigation was conducted, and RV scored 9 (high risk for malaria re-introduction). **Conclusion:** Influx of immigrants warrants active participation in malaria case detection, prevention, and control. Interagency collaboration is needed including strengthening of public-private partnership, training, regular vector control activities and production of multilingual health education materials.