Analisis Perkembangan Gigi (Odontogenesis) pada Mencit Strain C57BL/6 Usia Prenatal = Analysis of Teeth Development Process (Odontogenesis) in Prenatal Day C57BL/6 Mice

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Abstrak

Latar Belakang: Analisis mengenai tahap odontogenesis secara spesifik dibutuhkan untuk mempelajari berbagai abnormalitas gigi, baik terkait mekanisme, perawatan, maupun pencegahannya. Penelitian dilakukan pada mencit strain C57BL/6 karena terdapat keterbatasan penelitian jika dilakukan secara langsung pada manusia. Mencit C57BL/6 banyak digunakan dalam penelitian biomedis, akan tetapi, penelitian tentang odontogenesis pada mencit C57BL/6 masih sangat terbatas. Tujuan: Menganalisis proses odontogenesis pada mencit strain C57BL/6 pada prenatal. Metode: Rahang mencit C57BL/6 dipotong menjadi 4 bagian dan dilakukan fiksasi dengan 70% etanol. Kemudian dilakukan pembuatan preparat dengan arah pemotongan longitudinal pada maksila dan mandibula kanan dan arah pemotongan koronal pada maksila dan mandibula kiri, serta dilakukan pewarnaan hematoxylineosin (HE). Setelah itu, dilakukan pengamatan gambaran histologi gigi insisif dan molar rahang atas dan rahang bawah menggunakan mikroskop. Hasil: Preparat histologi maksila menunjukkan adanya benih gigi molar 1 dan molar 2. Pada preparat histologi mandibula terlihat adanya benih gigi molar 1 dan benih gigi insisif yang berada pada tahap perkembangan bell stage. Kesimpulan: Terjadi proses odontogenesis sampai tahap bell stage akhir pada gigi insisif rahang bawah mencit C57BL/6 usia prenatal, sehingga mencit C57BL/6 usia prenatal dapat menjadi objek penelitian dalam menganalisis perkembangan struktur jaringan gigi pada kondisi normal maupun patologis.

.....Background: Analysis of the specific stages of odontogenesis is required to study various dental abnormalities, including the mechanism, treatment, and prevention. This study was conducted on mice strain C57BL/6, the strain that is the most widely used in biomedical research. However, research on odontogenesis in C57BL/6 mice is still limited. Objective: To analyze the process of odontogenesis in prenatal strain C57BL/6 mice. Methods: The jaws of C57BL/6 mice were cut into four parts and fixation with 70% ethanol. Then, preparations were made with longitudinal cuts in the right maxilla and mandible and coronal cuts in the left maxilla and mandible, and hematoxylin-eosin (HE) staining was performed. After that, the histology of the maxillary and mandibular incisors and molars was observed using a microscope. Results: The maxillary histology preparations showed the presence of 1st and 2nd molars. In mandibular histology preparations, incisors were at the bell stage of development. Conclusion: The odontogenesis of the final bell stage was observed in the mandibular incisors of prenatal age C57BL/6 mice. Based on our result C57BL/6 prenatal mice can be used as the object of the future research in analyzing the development of tooth tissue structure in physiological or pathological conditions.