**Preoperative mapping biopsies with local excision in the treatment of Extramammary Paget Disease: a retrospective cohort study, systematic review and individual patient data analysis**

**Supplementary Material 1: Methods**

We searched all published literature using PubMed, Cochrane, Embase, and Scopus from inception to December 31, 2021, for individual patient data. Search terms included extramammary Paget disease or its synonyms (including perianal Paget disease and Paget disease of anus) and mapping or scout biopsy. Original articles that reported at least 5 cases of EMPD which underwent PMB with subsequent local excision and, if available, data on EMPD treated with local excision without PMB were included for meta-analysis. Studies lacking information on surgical methods or recurrence rates, and studies in which topical imiquimod was routinely prescribed postoperatively were excluded, as imiquimod could affect recurrence rates. We also excluded positive surgical margins only without data for recurrence as the involvement of tumor at the surgical margins does not necessarily lead to recurrence. PMB is performed at 1-3cm from the clinical margin of EMPD using a standard 3 or 4mm punch biopsy. Biopsies are processed as permanent or frozen sections. If biopsies are positive for Paget cells, further biopsies are generally taken at 0.5-1cm from the involved site. Final excision is based on results of the mapping biopsies. Articles were independently reviewed by two authors (SL, JHM) and the following individual patient data were extracted from each article: first author’s name, date of publication, journal name, study design, number of EMPD cases treated with and without PMB, age, sex, and number of cases that recurred and duration of follow-up. Study authors were not contacted. Quality assessment was conducted using the risk of bias assessment tool for non-randomized studies of interventions (ROBINS-I).

In addition, we retrieved data of EMPD treated surgically between January 2016 and May 2022 at our dermatosurgery clinic at the Seoul National University Hospital (SNUH). Patients were included if they underwent WLE with or without PMB. Patient information and tumor characteristics such as age, sex, location, duration of follow-up, surgical methods, surgical margin, and outcomes, were retrieved. Recurrence was confirmed by histopathological examination.

We compared the recurrence rates between patients with EMPD who were treated with and without PMB by combining our data with individual patient data found in the systematic review. Cox’s proportional hazard models were used to assess the 5-year recurrence rates. All statistical analyses were performed using R software (version 4.0.2; R Foundation for Statistical Computing, Vienna, Austria). P values less than 0.05 were considered statistically significant.

This study was approved by the Institutional Review Board of SNUH (No.2212-037-1382), and was conducted with strict adherence to the principles of the Declaration of Helsinki.

**Supplementary Figure Legends**

**Supplementary Figure 1.** ROBINS-I risk of bias assessment.

**Supplementary Figure 2.** Extramammary Paget disease on the male genital area.

(A, B) Multiple preoperative mapping biopsies (PMB) were performed at 1 cm from the clinical tumor margin. (C) The surgical margin was drawn by following tumor-free (negative) points from PMB. (D) Wide local excision was conducted. (E) The wound was closed with a transposition and advancement flap. (F) There was no recurrence at 53 months after local excision with PMB.

**Supplementary Figure 3.** Kaplan-Meier plot for a recurrence rate of extramammary Paget disease treated with or without preoperative mapping biopsy prior to wide local excision at different distances from clinical tumor margins.