Table 1. Summary of the validation dataset

|  |  |
| --- | --- |
| ESCC | 83 |
| Tumor size in mm, <5 / 5~10 / 10~20 / 20< | 3 / 20 / 32 / 28 |
| Macroscopic type, 0-Ⅰ,Ⅱa / 0-Ⅱb,Ⅱc | 7 / 76 |
| Depth of tumor\*, EP-LPM / MM / SM1 / SM2–3 | 52 / 12 / 2 / 7 |
| Non-cancerous lesions | 64 |
| lesion size in mm, <5 / 5~10 / 10~20 / 20< | 14 / 31 / 16 / 3 |
| LGIN / Atypical / Esophagitis / Papilloma / Others | 9 / 10 / 24 / 1/ 20 |

ESCC: esophageal squamous cell carcinoma

EP: epithelium, LPM: lamina propria, MM: muscularis mucosa, SM: submucosa

LGIN: low-grade intraepithelial neoplasia

\*Ten ESCCs diagnosed by biopsy were excluded from analysis of invasion depth.

Table 2. Diagnostic performance of the AI system and the endoscopists

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | AI system | All endoscopists (n=19)  (Average[range]) | Experts (n=13)  (Average[range]) | Non-experts (n=6)  (Average[range]) |
| Accuracy | 80.9% (119/147) | 69.2% [59.2-77.6%] | 69.9% [59.9-77.6] | 67.9% [59.2-76.2] |
| Sensitivity | 85.5％ (71/83) | 67.5% [37.3-85.5] | 68.5% [37.3-85.5] | 65.5% [51.8-81.9] |
| Specificity | 75.0% (48/64) | 71.5% [32.8-96.9] | 71.6% [32.8-96.9] | 71.1％ [46.8-90.6] |

AI: artificial intelligence

Table 3. Accuracy of the AI system and endoscopist by pathological diagnosis and size of lesion

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | AI system | Endoscopists\* | | |
| all | Experts | Non-experts |
| **By pathological diagnosis** |  |  |  |  |
| ESCC :83 cases  pEP/LPM : 52 cases  pMM/SM1/SM2 : 21 cases | 85.5% (71/83)  77.4% (41/52)  100% (21/21) | 67.5%  57.2%  89.0% | 68.5％  57.9%  89.7% | 65.5％  55.7%  87.3% |
| Non-ESCC :64 cases  LGIN/ atypical : 19 cases  Esophagitis/papilloma/others: 45 cases | 75% (48/64)  68.4％ (13/19)  77.8% (35/45) | 71.5%  64.8%  74.3% | 71.6%  64.0%  74.9% | 71.1%  66.7%  73.0% |
| **By size of the lesions** |  |  |  |  |
| <10mm : 68 cases | 72.1% (49/68) | 68.0% | 67.6% | 68.9% |
| ≥10mm : 79cases  ≥20mm : 31cases | 88.6% (70/79)  96.8% (30/31) | 70.3%  82.7％ | 71.8%  84.1％ | 67.1%  79.6％ |

AI: artificial intelligence, ESCC: esophageal squamous cell carcinoma

EP: epithelium, LPM: lamina propria, MM: muscularis mucosa, SM: submucosa

LGIN: low-grade intraepithelial neoplasia

\* Percentages shown are averages.

Table 4. Lesions correctly classified by the AI system but by less than 30% of the endoscopists

|  |  |  |  |
| --- | --- | --- | --- |
|  | ESCC | non-ESCC | Total |
| <10mm  10mm≤ | 3  5 | 0  1 | 3 (33.3%)  6 (66.7%) |
| Total | 8 (88.9%) | 1 (11.1%) | 9 |

ESCC: esophageal squamous cell carcinoma