**AIM:** To compare the survival by surgery (S group) to that by definitive chemoradiotherapy (CRT: R group) among patients with potentially resectable esophageal squamous cell carcinoma.

**METHODS:** From January 2003 to June 2012, 564 consecutive patients were reviewed. Overall survival (OS) was analyzed using Kaplan-Meier method and propensity-score adjusted Cox proportional hazard models. The variables included in propensity score model were age, gender, performance status (PS), histologic grade, primary cancer site, cT, cN, cM, serum albumin, and year of treatment (3 groups).

**RESULTS:** Three hundreds forty-two patients was in S group and 222 patients was in R group. Of the S group, 243 had preoperative chemotherapy, 37 had postoperative chemotherapy, and 62 had no adjuvant therapy. All values in patient characteristics were significantly different between S and R groups except for gender (age ≥ 65 years, 42% vs. 58%; gender male, 85% vs. 88%; Cancer site Ut/Mt/Lt, 14/49/37% vs. 14/60/27%; PS 0/1, 28/72% vs. 37/63%; cT stage 1/2/3, 19/13/68% vs. 40/9/51%; cN stage 0/1/2/3, 22/57/21/0% vs. 36/41/22/1%; cStage 1/2/3/4, 10/29/51/9% vs. 27/23/36/14%). In both unadjusted and adjusted analysis, there were no significant differences in survival of patients with cT1 and cT2 stages individually between S and R groups (cT1, unadjusted hazard ratio (uHR) 1.9, p = 0.15; adjusted hazard ratio (aHR) 1.5, p = 0.38. cT2, uHR2.1, p = 0.20; aHR1.8, p = 0.39). The R group was associated with worse OS compared to S group in those with cT3 stage (uHR1.9, p = 0.001; aHR1.8, p = 0.003). While OS benefit of S group was detected for cStage III patients (uHR2.2, p < 0.001; aHR2.1, p = 0.002), there were no significant differences in survival of those with cStage I or II between 2 groups (cStage I, uHR2.3, p = 0.15; aHR1.9, p = 0.34. cStage II, uHR1.0, p = 0.96; aHR1.1, p = 0.87). Although patients with cStage IV in S group showed significantly better OS in unadjusted analysis, this survival benefit was not present after adjustment as well (cStage IV, uHR3.3 p = 0.019; aHR2.8, p = 0.08).

**CONCLUSIONS:** Our study indicated CRT is comparable survival to surgery based therapy for patients with esophageal squamous cell carcinoma except for patients with cT3 or cStage III.

**DISCLOSURE:** All authors have declared no conflicts of interest.