

Supplementary material

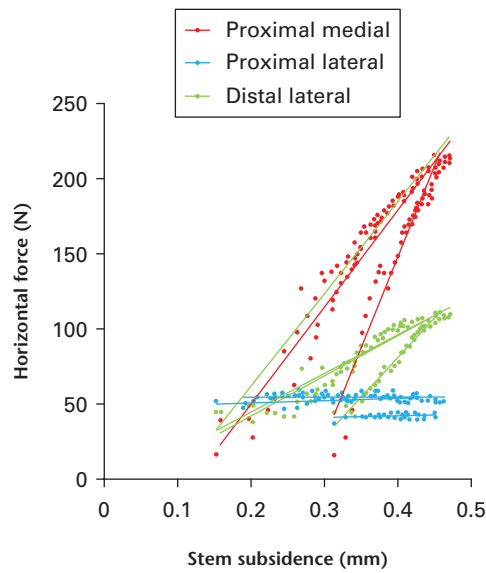


Fig. a

Correlation of stem subsidence and cement stress of the contact group.

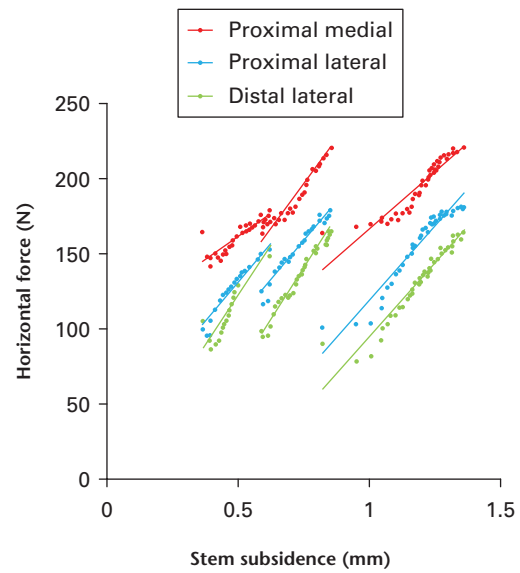


Fig. b

Correlation of stem subsidence and cement stress of the non-contact group.

A significant positive correlation ($p < 0.01$) was observed between stem subsidence and compressive force in all models in the proximal medial and distal lateral areas in contact group.

Correlation equation and correlation coefficient (r).

Proximal medial: Contact group 1: $y = 609.68x + 59.443$, $r = 0.802$, $p = 0.007$, Contact group 2: $y = 1208.9x + 334.7$, $r = 0.918$, $p = 0.0044$, Contact group 3: $y = 641.66x + 78.007$, $r = 0.916$, $p = 0.006$.

Proximal lateral: Contact group 1: $y = 5.82x + 53.435$, $r = 0.410$, $P = 0.078$, Contact group 2: $y = 6.519x + 47.509$, $r = 0.442$, $P = 0.091$, Contact group 3: $y = 2.892x + 40.757$, $r = 0.416$, $p = 0.083$.

Distal lateral: Contact group 1: $y = 115.41x + 5.285$, $r = 0.702$, $p = 0.007$, Contact group 2: $y = 118.47x + 10.962$, $r = 0.718$, $p = 0.0088$, Contact group 3: $y = 162.55x + 7.7804$, $r = 0.90$, $p = 0.0081$.

A significant positive correlation ($p < 0.01$) was observed not only at the proximal medial and distal lateral areas, but also at the proximal lateral area in non-contact group.

Correlation equation and correlation coefficient (r).

Proximal medial: Non-contact group 1: $y = 129.96x + 98.245$, $r = 0.81$, $p = 0.008$. Non-contact group 2: $y = 170.04x + 62.748$, $r = 0.852$, $P = 0.0073$. Non-contact group 3: $y = 153.34x + 14.994$, $r = 0.88$, $p = 0.0082$.

Proximal lateral: Non-contact group 1: $y = 186.67x + 27.348$, $r = 0.902$, $p = 0.007$. Non-contact group 2: $y = 175.21x + 1.67$, $r = 0.92$, $p = 0.0042$. Non-contact group 3: $y = 198.46x + 77.008$, $r = 0.89$, $p = 0.0062$.

Distal lateral: Non-contact group 1: $y = 268.75x + 9.94$, $r = 0.882$, $p = 0.0032$. Non-contact group 2: $y = 220.4x + 61.56$, $r = 0.87$, $p = 0.007$. Non-contact group 3: $y = 198.62x + 103.4$, $r = 0.91$, $p = 0.009$.

Table i. Comparison between groups

	Contact group, mean (SD)	Non-contact group, mean (SD)	p-value*
Stem subsidence (mm)	0.357 (0.075)	0.80 (0.102)	$p = 0.015$
Horizontal force (N)			
Proximal medial	231.01 (29.24)	215.61 (21.43)	$p = 0.132$
Proximal lateral	48.29 (7.71)	156.29 (13.64)	$p = 0.023$
Proximal anterior	23.80 (8.97)	33.23 (11.21)	$p = 0.101$
Proximal posterior	7.52 (3.96)	16.23 (6.51)	$p = 0.081$
Distal medial	-48.04 (9.86)	-34.09 (4.45)	$p = 0.079$
Distal lateral	98.13 (15.32)	116.78 (10.43)	$p = 0.041$
Distal anterior	-39.38 (14.88)	-31.84 (12.18)	$p = 0.105$
Distal posterior	-28.67 (9.46)	-32.91 (11.36)	$p = 0.116$

*Mann-Whitney U test