

**Supplementary Table 1 Changes in body weight of experimental rabbits in the modified magnetic compression modeling group and surgical modeling group before and after modeling (kg)**

Animal number	Pre-Modeling Weight	Post-Modeling Weight (5d)	Difference	Animal number	Pre-Modeling Weight	Post-Modeling Weight (5d)	Difference
M1	3.852	-	-	S1	3.370	-	-
M2	3.800	-	-	S2	3.283	-	-
M3	3.880	3.560	-0.320	S3	3.651	-	-
M4	3.513	3.500	-0.013	S4	3.286	-	-
M5	3.230	3.149	-0.081	S5	3.880	3.163	-0.717
M6	3.490	3.420	-0.070	S6	3.900	3.479	-0.421
M±SD	3.628±0.258	3.407±0.181	-0.121±0.136	M±SD	3.562±0.288	3.321±0.223	-0.569±0.209

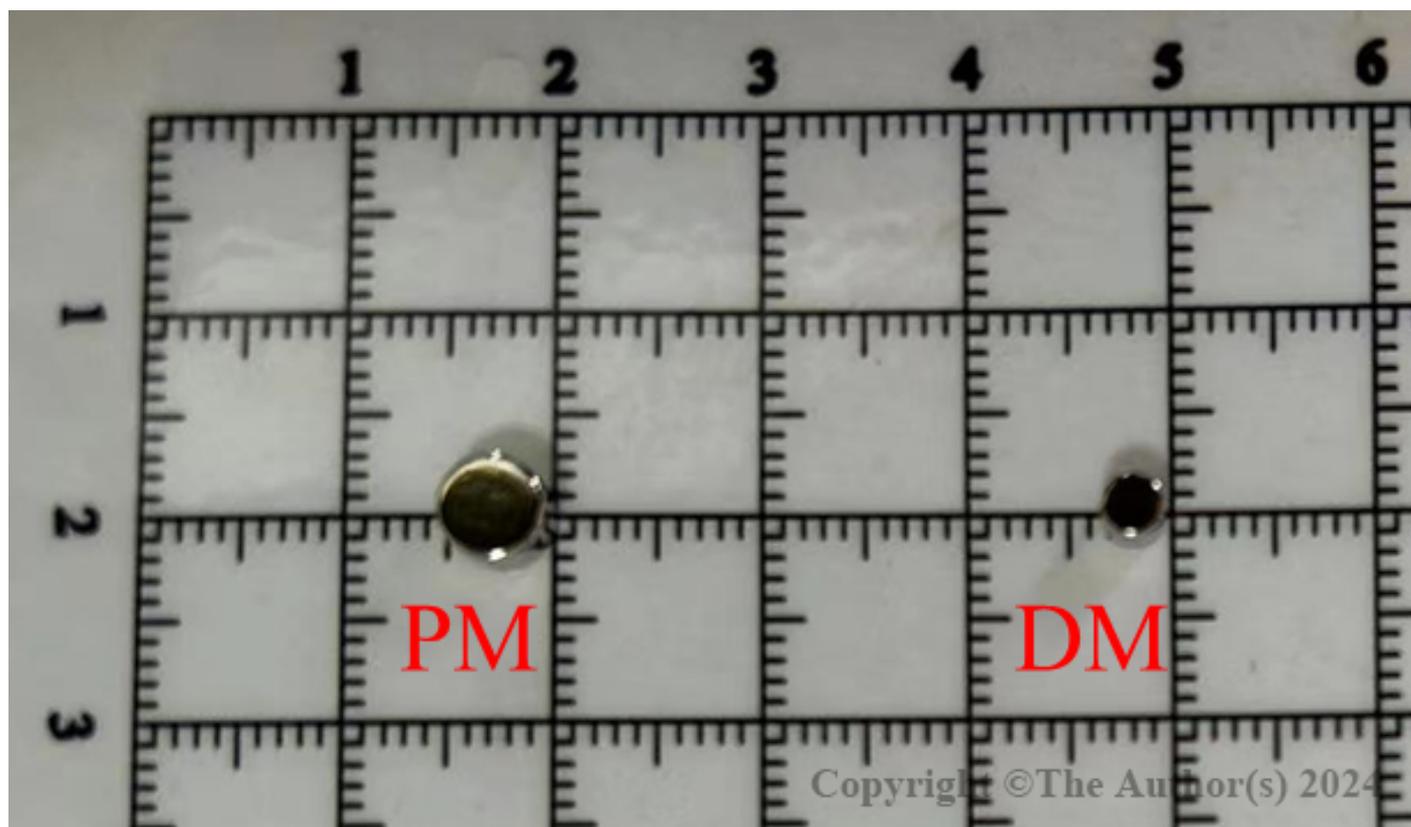
Note: M1-M6 represent the modified magnetic compression modeling group, and S1-S6 represent the surgical modeling group.

**Supplementary Table 2 WBC counts ( $\times 10^9/L$ ) and classification percentages before and after modeling using different modeling methods**

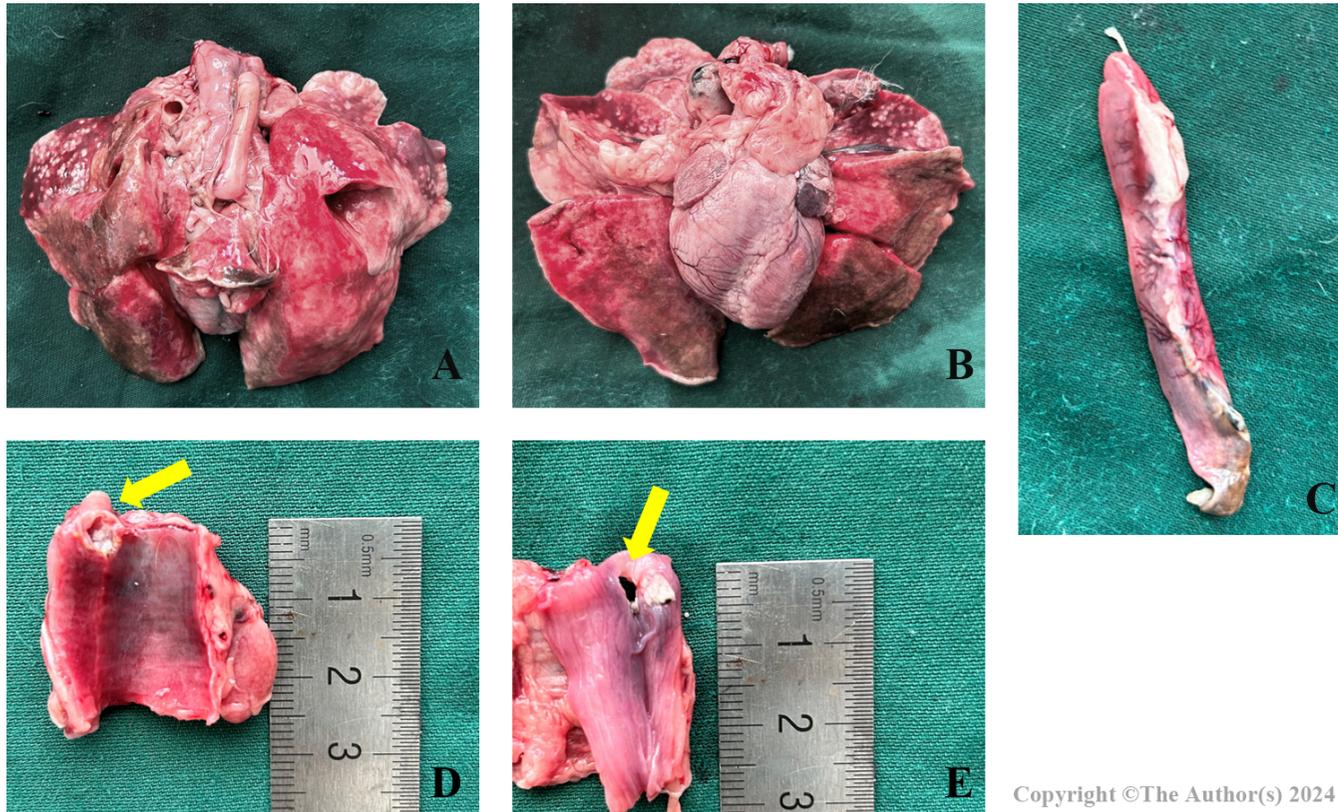
Group	Pre-Modeling				Post-Modeling						
	N	WBC	NE%	LY%	N	WBC	P value	NE%	P value	LY%	P value
Surgery	6	9.87 $\pm$ 1.27	39.77 $\pm$ 6.53	42.65 $\pm$ 5.72	2	18.17 $\pm$ 3.27	< 0.0001	69.40 $\pm$ 1.56	0.0011	21.25 $\pm$ 7.71	0.0943
Magnet	6	8.85 $\pm$ 1.70	40.53 $\pm$ 2.93	39.02 $\pm$ 8.72	4	14.62 $\pm$ 2.41	0.0004	63.85 $\pm$ 9.86	0.0012	28.78 $\pm$ 14.95	0.5745
Second Magnet	15	9.21 $\pm$ 1.17	38.77 $\pm$ 7.86	44.99 $\pm$ 7.63	12	15.97 $\pm$ 2.54	< 0.0001	68.47 $\pm$ 10.66	< 0.0001	23.79 $\pm$ 11.82	< 0.0001

Note: P values represent comparisons with pre-modeling within the same method.



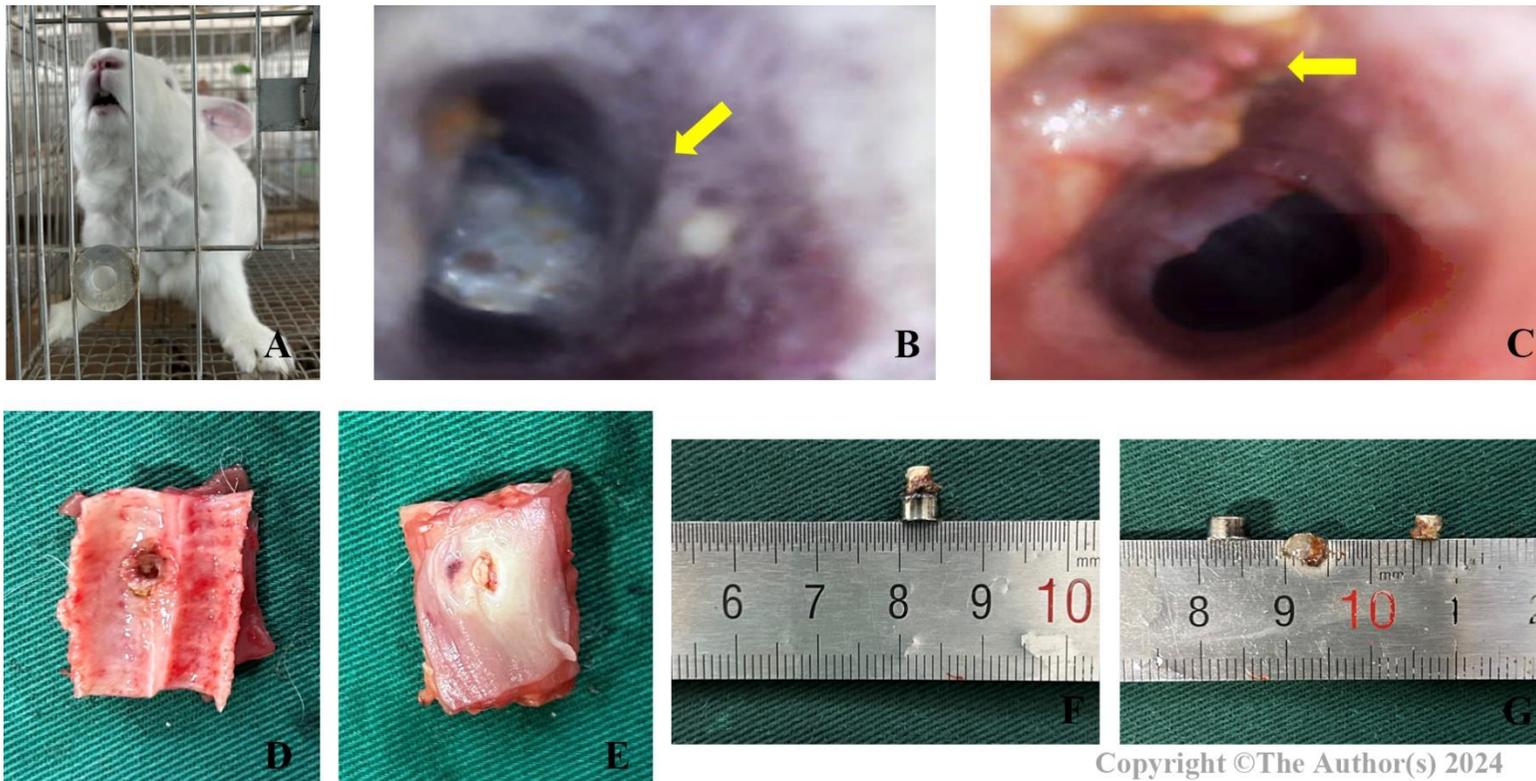


Supplementary Figure 1 Physical representation of the DM and PM used in the experiment.



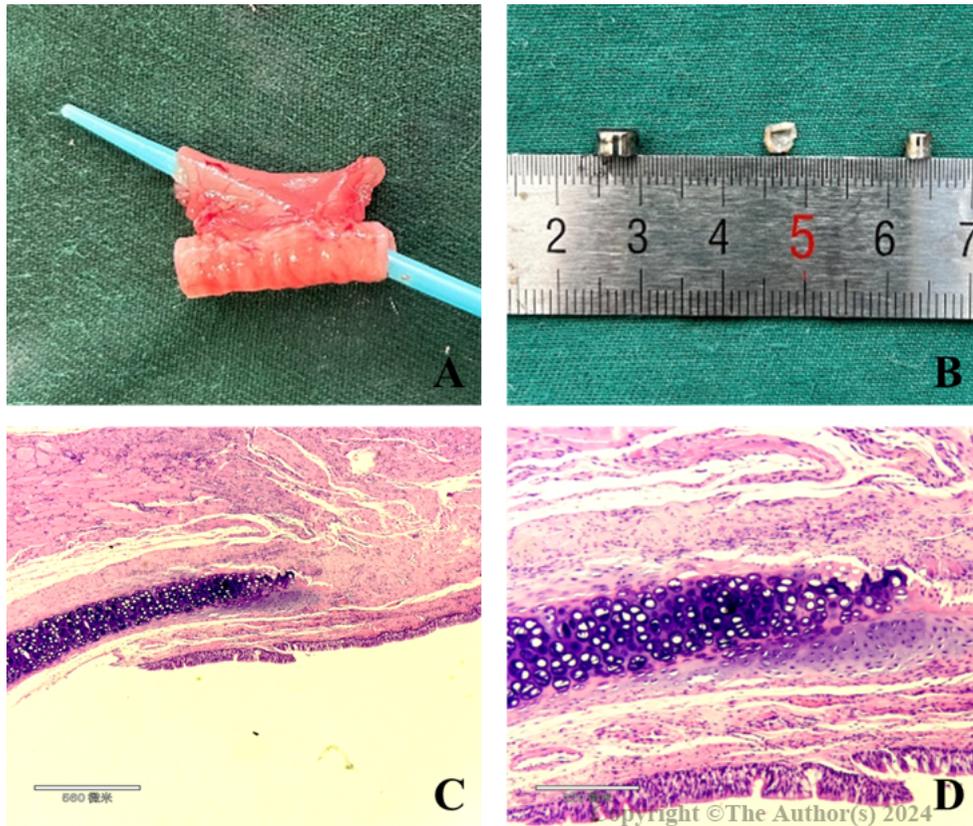
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Supplementary Figure 2 Gross anatomy of the rabbit that died on the 6th day after magnet placement (A: Dorsal view of the rabbit's lungs; B: Ventral view of the rabbit's lungs; C: Spleen; D: Longitudinal section of the trachea showing the fistula (indicated by the arrow), with the tracheal mucosa around the fistula appearing grayish-black; E: Longitudinal section of the esophagus showing the fistula (indicated by the arrow), with the esophageal mucosa around the fistula appearing grayish-black)).

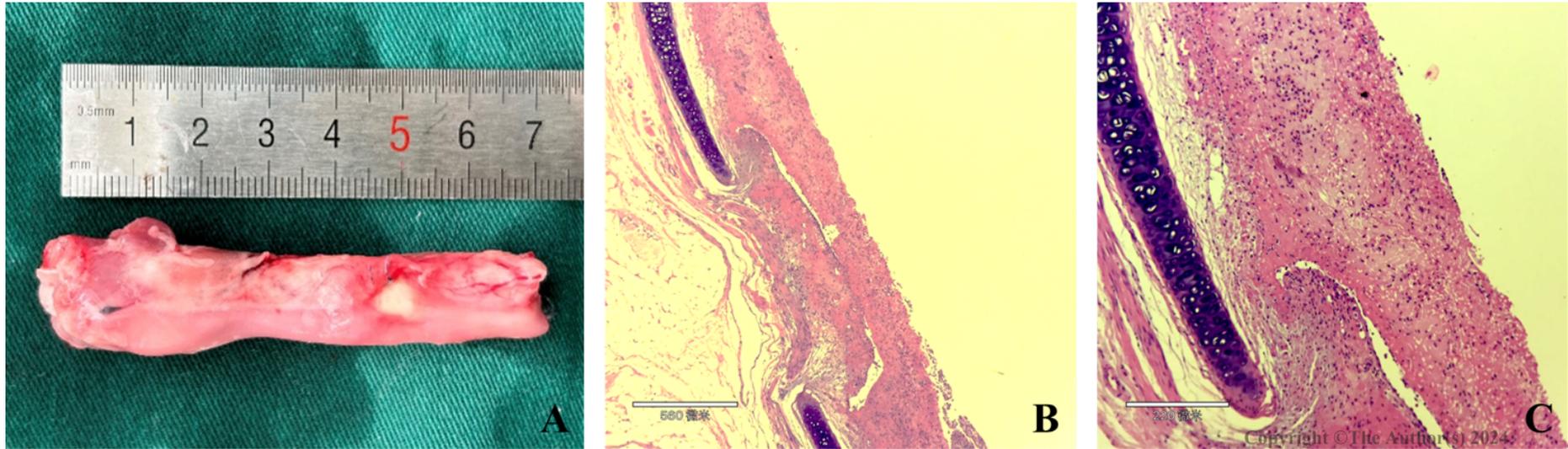


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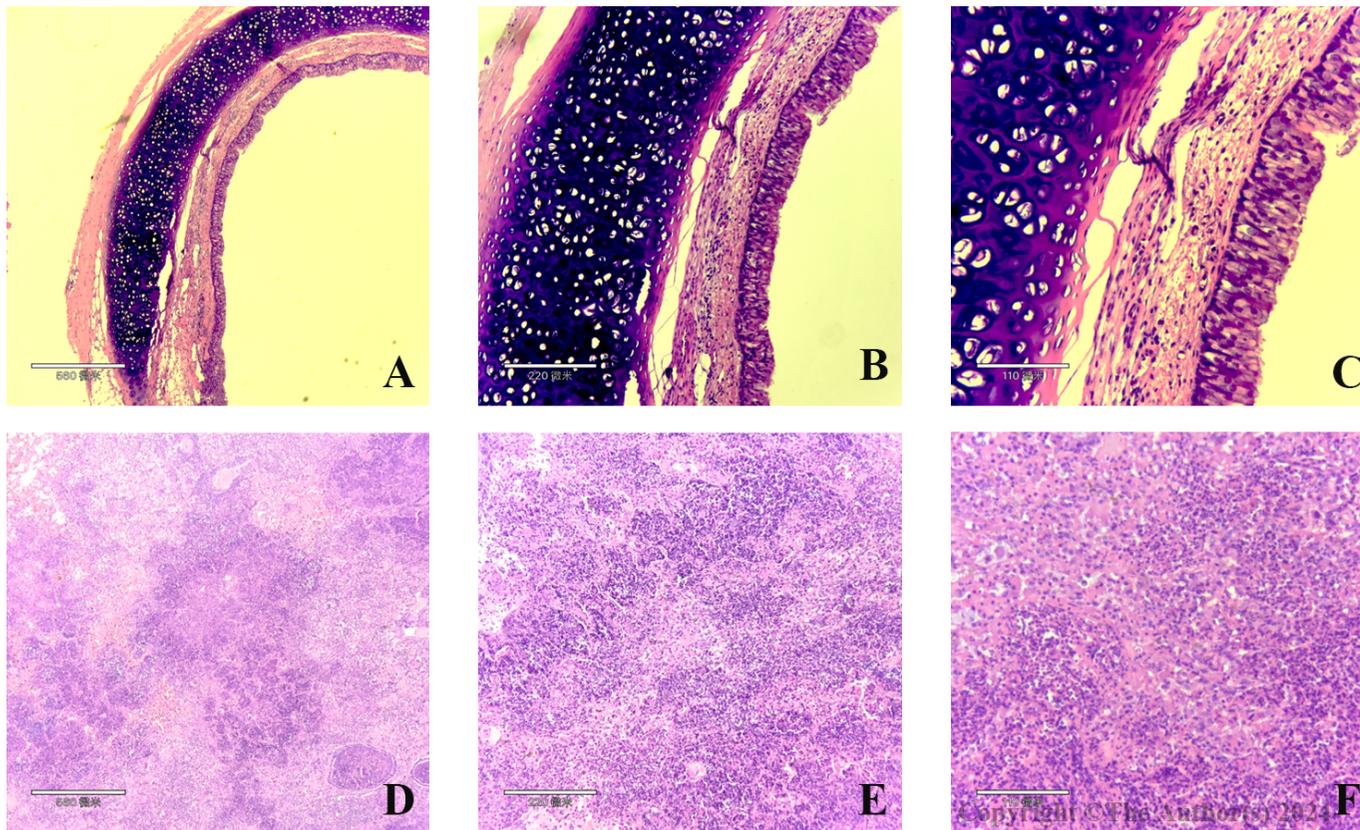
Supplementary Figure 3 Bronchoscopy and gross anatomy of the rabbit with DM and PM in the trachea (A: The experimental rabbit breathing with its mouth open, exhibiting exaggerated neck extension, cyanosis of the lips, and bluish-purple ear vessels; B: The magnet visible under bronchoscopy (indicated by the arrow); C: Tracheal fistula seen after removing the magnet (indicated by the arrow); D: Longitudinal section of the trachea showing the fistula; E: Longitudinal section of the esophagus showing the fistula; F: DM and PM retrieved from the trachea; G: DM and PM along with the necrotic tissue they enclosed).



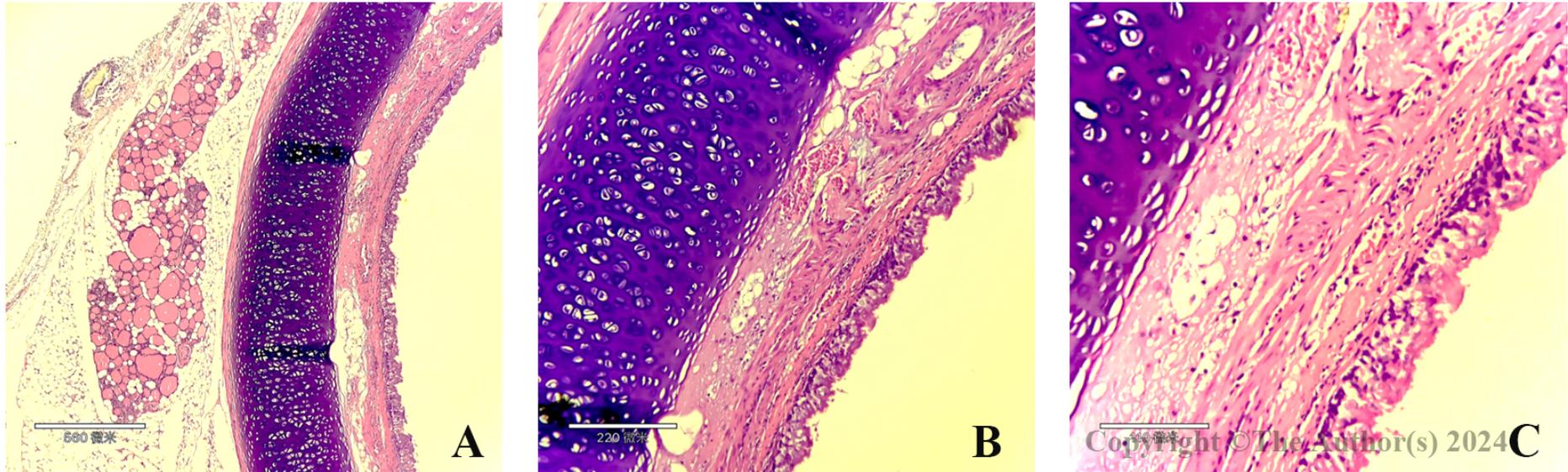
Supplementary Figure 4 Gross anatomy and pathology of the TEF model established by the modified magnetic compression method in rabbits (A: Guidewire inserted from the tracheal side, allowing access to the esophagus through the fistula; B: Physical representation of the DM and PM dislodged from their target position and enclosed necrotic tissue; C: Tracheal mucosa around the fistula (HE staining, 4×); D: Tracheal mucosa around the fistula (HE staining, 10×)).



Supplementary Figure 5 Gross anatomy and pathology of the TEF model established by the surgical method in rabbits (A: Gross anatomy of the trachea and esophagus; B: Tracheal mucosa around the fistula (HE staining, 4×); C: Tracheal mucosa around the fistula (HE staining, 10×)).



Supplementary Figure 6 Histopathological examinations of the trachea and lungs in experimental rabbits on the 2nd day after successful creation of the TEF using the modified magnetic compression method for the second round (A: Tracheal mucosa around the fistula (HE staining 4×); B: Tracheal mucosa around the fistula (HE staining 10×); C: Tracheal mucosa around the fistula (HE staining 20×); D: Lung tissue (HE staining 4×); E: Lung tissue (HE staining 10×); F: Lung tissue (HE staining 20×)).



Supplementary Figure 7 Tracheal histopathological sections of the TEF model in rabbits established using the modified magnetic compression method for the second round (A: Tracheal mucosa around the fistula (HE staining 4×); B: Tracheal mucosa around the fistula (HE staining 10×); C: Tracheal mucosa around the fistula (HE staining 20×)).