

## Reviewer 1

This is an experimental study that is evaluating silicone-covered magnesium stent for treating benign esophagus stricture in rabbit model. However; I would like to point out the following:

1. The Abstract section has a lot of general knowledge. The Materials and Methods are not in the Abstract. The experimental study design and the Results are not mentioned in the Abstract. So, The Abstract must be re-written briefly.

**Abstract has been re-written briefly.**

2. Mg-silicone stent, the abbreviation of the “silicone-coated magnesium alloy biodegradable esophageal stent”, should be changed. Because, the stent are not magnesium-silicone compound, it is only covered silicone.

**“Mg-silicone stent” changed “silicone-covered magnesium stent”.**

3. In Figure 3, “Evaluation of the degradation behaviors of the Mg-silicone stents”. In the Figure, Is it a wire or stent? Is it silicon coated wire, or magnesium alloy wire or stent? They must be explained. In Figure C 8 weeks, what is there? Nothing? It should be written and discussion.

**We were revised: “Evaluation of the degradation behaviors of the magnesium alloy wire. (A) Topography of magnesium alloy wire with indicated length (left, 1.5 feet; and right, 3 feet); (B-C) Degradation topography of magnesium alloy wire at 4 weeks after incubation in phosphate-buffered saline with pH values of 7.4 (B) and 4.0 (C) ”. Because 8 weeks is not related to this study, so we deleted it.**

4. “Degradation of the stent”, what does it mean? Is it degradation of the magnesium alloy wire, or silicone membrane? Which one is the first degradation material? If the stent is wholly covered with silicone, how does silicone degrade, and how does stent degrade? Is the magnesium wire breaking? The Authors must be explain and discuss them.

**“Degradation of the stent” is mean degradation of magnesium alloy wire; Magnesium alloy wire is the first degradation material; The silicone covered in outside of the magnesium stent. Silicon and stent degrade with esophageal acidic environment. After the stent is partially degraded, it does not provide sufficient support force, then the stent**

**collapses and displaces.**

5. In Figure 5, there are some questions. "Figure 5. The implantation, follow-up and in vivo degradation of Magnesium-silicon stents. (IN THE FIGURE "SILICON-MAGNESIUM STENT?) (A) Representative esophageal angiography (ESOPHAGOGRAPHY?) images show the procedure of stents insertion in rabbits. (a) Upper-middle esophageal stenosis (yellow arrowS); (b) Balloon expansion after (or BEFORE?) stent implantation; (c) Angiography (ESOPHAGOGRAPHY?) after S stent implantation: stenosis esophageal expansion and in place (yellow arrowS), positioning mark in the bottom of stent is clearly visible (red oval); (d-e) Follow-up at 1 week (d) and 2 weeks (e) after stents insertion; stenosis esophageal expansion and in place (yellow arrowS), positioning mark clearly visible (red oval). (B) Microscopic (MACROSCOPIC?) examination of the magnesium to track its retention before (control) and at 1 week (1W) (not needed) and 2 weeks (2W) (not needed) after stent implantation."

**(IN THE FIGURE "SILICON-MAGNESIUM STENT?) is silicone-covered magnesium stent." The implantation, follow-up and in vivo degradation of silicone-coated magnesium stents". esophageal angiography is "ESOPHAGOGRAPHY", (b) Balloon expansion after (or BEFORE?) stent implantation, before not after; (B) Microscopic (MACROSCOPIC?) examination, microscopic not macroscopic. All were revised in article.**

6. In Figure 6, the images are not clear. Are there any drawing? If yes, it is not necessary. All figures should be explained with markers such as asterisk, arrow, plus, etc. No other comment. This is a good experimental study. So, the manuscript should be published in World Journal of Gastroenterology after minor revision.

**The Figure 6 is provides the original image in image.PPT**

**Thanks very much.**

**Reviewer 2**

These authors made a Mg-silicone stent, measured its flexibility and elasticity, in vitro degradation, and cell toxicity against the proliferation of smooth muscle cells. They applied the stent in a rabbit model of BES. Histological examination revealed that the inflammation scores were similar to those in the controls. The smooth muscle actin

layer in the muscle layer was thinner in the Stent group. Finally, the stent provided reliable support for two to four weeks. This paper is informative in providing a new tool to relieve patients with benign esophageal stricture of difficulties in swallowing. The authors showed mechanical properties, tissue reactions, and bio-sustainability of the stent.

They are suggested to provide information like body weight changes, diet and water in-take in the experiment and control groups to show evidence that the stent really relieved or at least reduced dysphagia from esophageal strictures.

**The diet and water in-take in the experiment and control groups were indiscriminate breeding. The weight was measured as  $(3.56 \pm 0.3)$ Kg before stent insertion and  $(3.48 \pm 0.4)$ Kg,  $(3.23 \pm 0.3)$ Kg and  $(2.89 \pm 0.2)$ Kg after 1, 2 and 3 weeks; while the weight of control was  $(3.53 \pm 0.3)$ Kg.**

**Thanks very much.**

### **Reviewer 3**

Indeed, currently biodegradable stents are the good alternative to self-expandable plastic stents for treating benign esophagus stricture. The authors describe the original method of applying the silicone-covered biodegradable magnesium stent in rabbit model. They showed that the Mg-silicone stent can meet the requirements for biodegradable stents, in terms of tensile strength, biological safety, and complications. However, it is well known that the degradation of the most well-known biodegradable stents, Polydioxanone, or Poly-L-lactic acid begins in 4–5 weeks and dissolves within 2-3 months, which may be sufficient to treat refractory benign esophageal strictures. When applying a silicone-covered biodegradable magnesium stent, degradation occurs within 1-2 weeks, which can be clinically ineffective. Also not known is the long-term benefit of using a silicone-covered biodegradable magnesium stent. To the best of my knowledge, the cost of known biodegradable stents is around £ 900 (pound). In this regard, the cost of the silicone-covered biodegradable magnesium stent seems interesting.

**The stent of Polydioxanone, or Poly-L-lactic acid were not provide sufficient support force to tearing esophageal scar, and the time esophageal reconstruction is 2 week, 4–5 weeks and dissolves within**

2-3 months is too long and lead to esophageal intimal hyperplasia and stent stenosis. According to our clinical experience, the optimal degradable time is controlled at 2-4 weeks. We are also looking for cheap degradable materials.

Thanks very much.