Case report: Treatment of rectovaginal fistula with Bioglu®

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ABSTRACT

INTRODUCTION: Rectovaginal fistulas have a multitude of causes and it is well known that obstetric and gynecological problems form a large part of these causes such as our case.

PRESENTATION OF CASE: We present a 45-year-old female that presented with complaints of stool per vagina and was found to have a rectal vaginal fistula near the vaginal cuff from her previous uncomplicated vaginal hysterectomy. The patient was originally scheduled for a complex open abdominal surgery based on examination but underwent a sigmoidoscopy with vaginal examination and identified a small opening with minimal inflammation. The patient was treated with Bioglu® and had complete resolution of the fistula at follow-up.

DISCUSSION: There are numerous cases presented in the literature on the use of bioglu for anal fistulas and rectovaginal fistulas with multiple cases of success. However, in looking at the literature failure appears to be due to ongoing inflammation from the previous disease process.

CONCLUSION: Although the use of Bioglu® may not be suitable for all patients with rectovaginal fistulas, it offers yet another treatment modality for select patients.

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1. Case presentation

We present a 45-year-old female that presented with complaints of stool per vagina for 3 months. Her past medical history was significant for an uncomplicated vaginal hysterectomy performed in 2006 for endometriosis. Initial exam did not reveal fistula, subsequent exam with manual digital pressure showed small opening. Vaginal examination confirmed the presence of fecal stream from the posterior vaginal cuff with an opening of less than 5 mm identified as a high fistula. The patient was referred to our general surgery clinic for possible rectovaginal fistula surgical repair. Previous computed tomography of the pelvis demonstrated an area of inflammation between the rectum and vagina at the same location (Fig. 2). A bowel prep was performed and patient underwent flexible sigmoidoscopy which failed to identify the fistula tract. However, on examination of the vaginal cuff with speculum exam did reveal the area of suspicion and was confirmed with expression of small amount stool (Fig. 1). A 5-ml syringe of commercial purified bovine serum albumin (BSA) and glutaraldehyde surgical adhesive (Bioglu®, Cryolife, Inc., Atlanta, GA) was applied to the area and patient discharged home with instructions to continue a low residue diet and abstain from sexual activity until follow-up in clinic. At return to our clinic at 3 weeks, she had complete resolution of stooling from her vagina and at 6 month follow-up remained symptom free.

2. Discussion

Rectovaginal fistulas (RVF) have a multitude of causes and it is well known that obstetric and gynecological problems form a large part of those causes. Classification of the fistulas is based on the location in relationship to the cervix and vaginal fourchette with low lying being near the later and high fistulas near the cervix. It is
also important to classify RVF into simple and complex due to the different treatment algorithms. Simple fistulas are defined as low lying fistulas, less than 2.5 cm in size, and associated with simple trauma or infection. Complex RVFs are defined as size greater than 2.5 cm, high fistulas near the cervix, associated with inflammatory bowel disease, or are recurrent. Simple RVFs can be repaired using the endo-rectal advancement flap, however, complex RVFs involve larger surgeries. In high RVFs the transabdominal approach is often sited with the repair involving interposition of healthy tissue between the rectum and vagina with surgical modalities including low anterior resections, abdominal perineal resections, and complex muscle flaps. Our patient had a high fistula, which would have required a transabdominal surgical repair, however, we were able to treat here fistula with the bioglue. How bioglue works has been defined and the novel surgical adhesive Bioglue (CryoLife, Kennesaw, GA) provides a four times stronger bond than fibrin glue. It is composed of bovine serum albumin and glutaraldehyde, molecules which covalently bond together as well as to the tissue proteins at the repair site, creating a flexible mechanical seal. It remains intact for up to 2 years and is then resorbed slowly and replaced by normal tissue without causing a chronic inflammatory state.

There has been a lot of interest in less invasive procedure with the introduction of bioprosthetic fistula plug made from porcine intestinal submucosa (Anal Fistula Plug, Cook Surgical Inc., Bloomington, IN). Although original designed for anal fistulas, has moved into being used for RVFs with success and continues to be evaluated and has been studied in randomized clinical trials comparing surgical versus fistula plug with mixed results. There have also been a few case reports of the use of fibrin or bioglue for the repair of RVFs, but only in a few select patients has it been successful. One case reported the use of histocryl as a sealant placed between endoclips after a 78-year-old female refused surgery and at follow-up was asymptomatic at 2 months. Abel et al. had the largest case report series with ten patients treated with a fibrin glue for a mixture of complex RVFs with 60% of patients having complete healing of the fistula. The reported failures were due to immuno-compromised states due to Crohn’s disease and HIV, but the patients still reported decreased drainage.

The use of bioglue is not a novel idea and has been used in the treatment of anal fistulas with some success with cure rates reported at 50%. However, one study treated eight patients with not so promising results. Seven patients identified had transspheretic anal fistulas and one had a rectovaginal fistula. The anal fistula group underwent transanal advancement flap repair with bioglue and the RVF patient had bioglue alone. Of the eight patients only one patient had complete resolution of the fistula tract with the others suffering complications of pain, abscess, and persistent fistula tract. Due to these complications the study was ended sooner. One explanation given for the failure could have been due to the persistence of inflammation after the procedure.

De la Portillia et al. used bioglue to seal fistula tracts in 14 patients after cuttage with a reported cure rate of 50% after a follow up mean period of 13.9 months. The group recently published a 60 month follow up of the original seven patients that had a cure and of that group only three patients remained asymptomatic with a new cure rate of 21%.

There are various smaller cases of recurrent RVFs treated with bioglue with some success sited together with other surgical modalities. One group used bioglue for the repair of recurrent rectovaginal fistulas in three patients, one with bioglue and the other two with mucosal advancement flaps (MAF) and bioglue. The two MAF with bioglue failed yet the one with the bioglue alone resolved. Again as seen with the failure of the anal fistula group above, they attributed failure due to either inflammation, hematoma, tension, or underlying disease (e.g. Crohn’s). In summary Table 1 shows an easy format to look at the above discussed cases of rectovaginal fistulas that have been treated with some form of glue and the outcomes.

### Table 1
Summary of cases in the literature of repair of rectovaginal fistulas using bioglue or equivalent.

<table>
<thead>
<tr>
<th>Author</th>
<th>Agent</th>
<th>Follow-up</th>
<th>Outcome/# of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abel et al.</td>
<td>Fibrin glue</td>
<td>3–12 months</td>
<td>4 of 5 healed fistula (80%)</td>
</tr>
<tr>
<td>Ortiz-Mayano et al.</td>
<td>(Histoacyrl) and resolution clips</td>
<td>2 months</td>
<td>Resolution of fistula</td>
</tr>
<tr>
<td>Alexander et al.</td>
<td>Bioglue</td>
<td>Not reported</td>
<td>One case Failed</td>
</tr>
<tr>
<td>De la Portillia et al.</td>
<td>Bioglue</td>
<td>3–21 months</td>
<td>One case Cure rate in 7 patients (50%)</td>
</tr>
<tr>
<td>De la Portillia et al.</td>
<td>Bioglue</td>
<td>60 months</td>
<td>New cure rate in original 7 patients only 3 patients remained asymptomatic (21%)</td>
</tr>
</tbody>
</table>

### 3. Conclusion
Rectovaginal fistulas have well defined etiologies and depending on their classification of simple or complex will define their treatment. We have presented a unique treatment, defined in the literature with a few case reports, of the use of bioglue to repair a rectovaginal fistula. This allowed outpatient, noninvasive cure without resorting to laparotomy and surgical repair, with obvious benefit to the patient. Although the use of bioglue may not be suitable for all patients with RVFs, it offers yet another treatment modality for selected patients.

### Conflict of interest statement
None.

### Funding
None.
Consent

Consent was obtained.

Author contributions

Steven Garcia M.D. was a 4th year surgical resident participated in the care of the patient and writing of manuscript.

Sharmila Dissanaike M.D. was an associate professor involved in care of patient and review of case report.

References