



Case Report of gastroparesis healing: 16 years of a chronic syndrome resolved after proximal intercessory prayer

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ABSTRACT

A male infant at two weeks of age was hospitalized vomiting forcefully. He had a pyloromyotomy. He did not improve with medical therapy. The diagnosis of gastroparesis was made after a nuclear medicine gastric emptying study and intestinal manometry. He required a gastrostomy tube (g-tube) and a jejunostomy tube (j-tube) for feeding. At 11 months of age, the j-tube was converted into a feeding jejunostomy with Roux-en-Y limb. For 16 years he was completely dependent on j-tube feeding. In November 2011, he experienced proximal-intercessory-prayer (PIP) at a church and felt an electric shock starting from his shoulder and going through his stomach. After the prayer experience, he was unexpectedly able to tolerate oral feedings. The g- and j-tube were removed four months later and he did not require any further special treatments for his condition as all symptoms had resolved. Over seven years later, he has been free from symptoms. This article investigates a case of PIP as an alternative intervention for resolving severe idiopathic gastroparesis when maximal medical management is not effective.

1. Introduction

The present case of sudden, lasting recovery from severe, refractory, and lifelong gastroparesis is unique in the literature. Gastroparesis is defined as a chronic syndrome of objectively delayed gastric emptying in the absence of mechanical obstruction. It impacts the quality of life (QoL)^{1,2} as it increases healthcare costs and is associated with morbidity and mortality.^{3,4} Abell et al.⁵ attribute it to abnormal gastric myoelectrical activity (e.g., abnormal slow-wave frequency, low slow-wave amplitude, and slow-wave uncoupling) or abnormal gastric motility (e.g., gastric hypomotility and uncoordinated gastric or duodenal contractions). Cardinal symptoms include early satiety, postprandial fullness, nausea, vomiting, bloating, and upper abdominal pain,⁶ in addition to gastroesophageal reflux and chest pain.⁷ A long-term study following 146 patients (ages 15 to 76) with gastroparesis found a range of etiologies that included idiopathic (36%), diabetes (29%), postsurgical (13%), and others (22%)⁸ In a study of 239 pediatric patients (ages 0 to 21), the most common causes of gastroparesis were idiopathic (70%), followed by an adverse drug reaction (18%), postsurgical (12.5%), and diabetes (4%)⁹ Idiopathic gastroparesis refers to asymptomatic patient with no detectable primary underlying abnormality causing the delayed gastric emptying¹⁰ High frequency/low energy gastric electrical stimulation (GES) has been found effective to

significantly decrease vomiting frequency, relieve gastrointestinal symptoms, and improve QoL in adults. Abell et al.⁵ found 70% of 16 idiopathic patients and 77% of the 17 diabetic patients reported a $\geq 50\%$ reduction in weekly vomiting frequency at 12 months compared with baseline. In three cases involving post-infection,¹¹ diabetic,¹² and postsurgical¹³ gastroparesis treated with mirtazapine (a mixed-profile serotonin agonist/ antagonist), researchers found positive results ranging from the cessation of vomiting, reduction in nausea, increased tolerance for oral intake, to the overall resolution of symptoms. However, in most cases, especially of idiopathic gastroparesis, standard medical therapy is not effective to completely resolve symptoms of severe gastroparesis and despite some relatively symptom-free intervals,¹⁴ it remains a chronic, lifelong condition. The most common treatments include symptom management, correction of fluid and electrolyte imbalances, and maintenance of optimal nutritional status.¹⁴

One of the most effective surgical interventions for refractory cases involves gastrostomy tube insertion, which can include the insertion of a jejunal feeding tube. A feeding Roux-en-Y jejunostomy (Fig. 1) permits feeding via a self-retaining catheter external to the body that goes inside of the lumen of the jejunum (j-tube) through a Roux-en-Y limb.

This case report¹⁵ examines proximal intercessory prayer (PIP) as an intervention to resolve symptoms related to gastroparesis when

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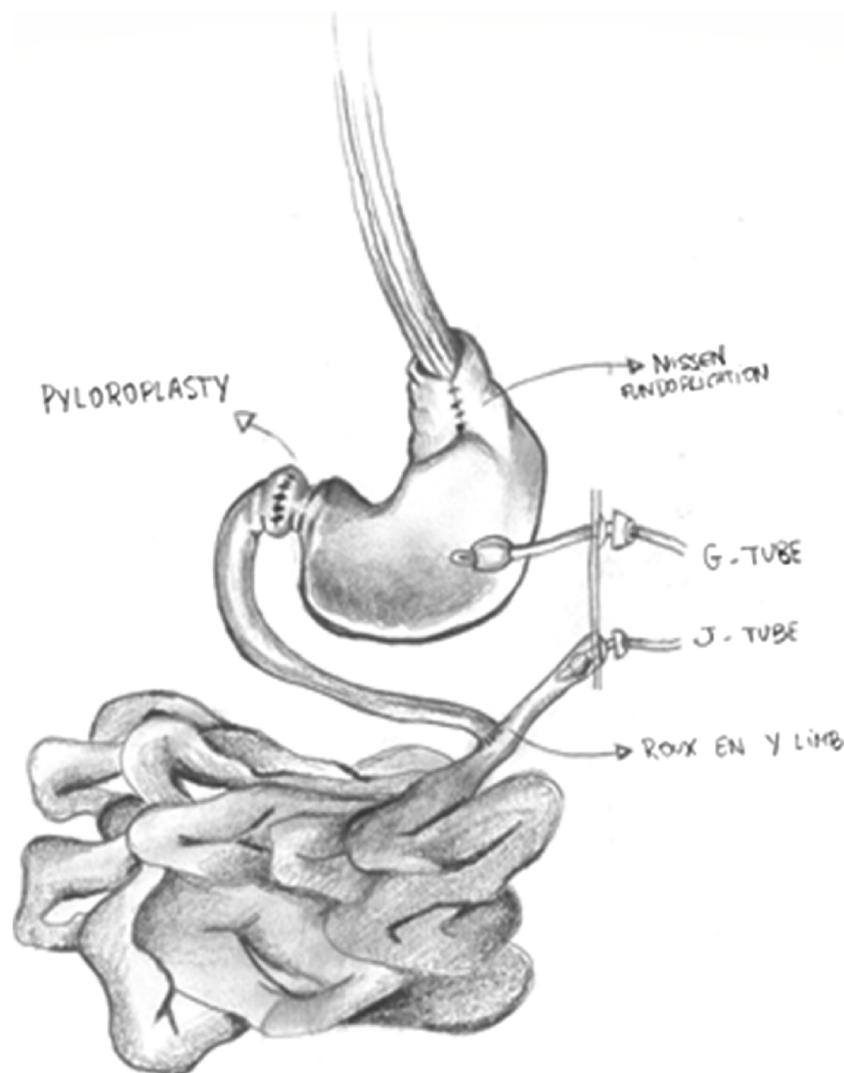


Fig. 1. The anatomy of the patient's digestive system. Gastroparesis is defined by delayed gastric emptying. The patient had a Nissen fundoplication, a pyloroplasty, and a Roux-en-Y jejunostomy. Large intestines not shown.

maximal medical management was administered but not effective. PIP, as described by Brown and colleagues¹⁶ refers to direct-contact prayer typically less than 15 min, frequently involving touch, by placing hands on the recipient and sometimes embracing them in a hug, keeping the intercessor's eyes open to observe results. The prayer is typically done in "soft tones". The intercessor may "petition God to heal, invite the Holy Spirit's anointing, and/or command the healing and departure of any evil spirits in Jesus' name."¹⁶ The observed effects of prayer vary widely, from no apparent effect to remarkable improvement in conditions that are not medically expected to improve, such as longstanding blindness or deafness.¹⁶ This practice is done by one or more persons on behalf of another and is one of the most common complementary and alternative medicines (CAM) therapies.¹⁶

2. Presenting concerns

This is a case study of a 23-year-old white American male with a history of idiopathic gastroparesis. All research reported here was approved by the Institutional Review Board of the Global Medical Research Institute. The patient provided full informed consent to participate in the research. Medical records and notes were transcribed to improve legibility and are available in Fig. 2 in addition to supplementary material (SM). The patient at one week of age began to have intermittent cramping and projectile vomiting, but regular bowel

movements. He was admitted into the hospital and went through several procedures to ensure that he would be able to receive adequate nutrition.

3. Clinical findings

During the first sixteen years of his life, the patient maintained an active/athletic and relatively unremarkable lifestyle, apart from his gastroparesis. His weight was in the 75th percentile and his height was between the 25th and 50th. He was completely dependent on jejunostomy feeding and drinking for 16 years of his life, via the g-tube and j-tube (SM 2: 12/19/03 and SM 3: 07/16/09). There were no other comorbidities to note. The only interventions that were conducted were to treat symptoms of the disease and provide adequate nutrition, not to cure the condition. His father had a history of gastric esophageal reflex disorder and his mother a history of asthma. He reports that he grew up in a Christian household where his family practiced prayer and attended weekly church services.

4. Timeline

4.1. Diagnostic focus and assessment

At two weeks of age, he was diagnosed with pyloric stenosis by

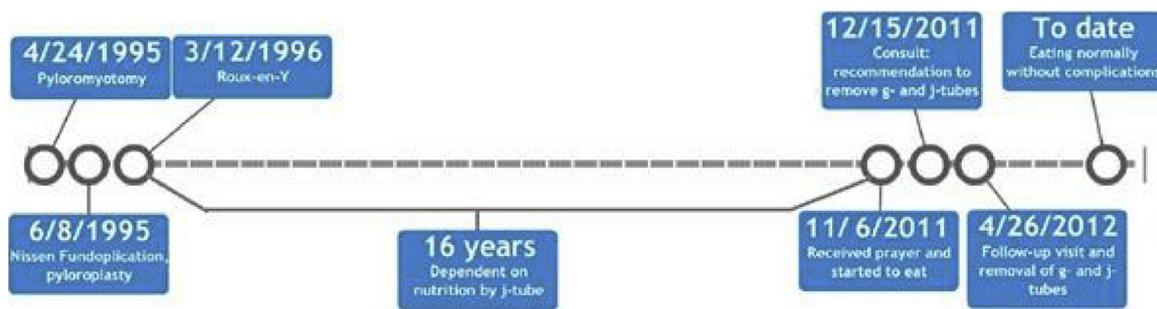


Fig. 2. Timeline of the main events in the medical history of the patient.

ultrasound and had a pyloromyotomy. He had a barium upper gastrointestinal study at seven weeks of age that was not suggestive of pyloric stenosis, but he demonstrated marked gastroesophageal reflux (GER) and a hypomotile stomach. On the basis of a nuclear gastric emptying study and intestinal manometry (standard tests for assessment¹⁷) the diagnosis of gastroparesis was made (SM 1: 7/20/95). The gastroparesis could have been caused by unintentional injury to the vagus nerve following the Nissen fundoplication¹⁸ or may have been congenital. A pyloromyotomy or pyloroplasty should not have resulted in vagus nerve injury (M. Fallat, personal communication, January 11, 2018). He was diagnosed with severe gastroparesis of unclear etiology, but normal small bowel motility (Fig. 2; SM 1: 7/20/95), and the condition appeared to be idiopathic. There are no medical records for a gastric emptying study post-healing, although the complete resolution of symptoms entails a substantial improvement in gastric emptying. The course of this case is unusual as the standard medical therapy is not effective to completely resolve symptoms of severe gastroparesis, and it remains a chronic, lifelong condition.

4.2. Therapeutic focus and assessment

At six weeks of age, Nissen fundoplication and pyloroplasty was used to treat gastroesophageal reflux and facilitate gastric emptying. He was placed on nasojejunal feedings and could tolerate only small amounts of oral formula. The patient underwent multiple operations during the following two months. On July 27, 1995, surgeons placed a gastrostomy tube (g-tube). A j-tube was inserted 30 cm distal to the Ligament of Treitz (LoT) into the jejunum. The j-tube was inserted for feeding as a more permanent solution to accommodate his intolerance to other forms of feeding. At 11 months of age, the surgeons performed a feeding jejunostomy with Roux-en-Y limb (40 cm distal to the LoT).

While completely dependent upon j-tube feeding, the patient was able to grow in weight and height and develop normally. Over the course of the next seven years, the pediatric gastroenterologist tried numerous medications (dosage, date last mentioned in the medical records in that dosage): ranitidine (45 mg b.i.d. 09/25/01), cisapride (0.8 mg/kg/day 04/25/95), zantac (45 mg b.i.d. 12/19/03), omeprazole (10 mg 11/05/97), as well as different formulas and minerals. He had multiple visits to the pediatric gastroenterology clinic documenting the persistent need to aspirate the g-tube and inability to tolerate oral feedings (Fig. 2; SM 2: 12/19/03).

The prognosis for recovery of function was poor. Apart from congenital gastroparesis or vagal nerve injury, a differential diagnosis of viral vs. idiopathic gastroparesis might have been considered. Still, viral gastroparesis is unlikely because it generally resolves gradually after two years.¹⁹ In this case, the symptoms remained severe and refractory, with no improvement for sixteen years.

Despite this, the patient reports he was able to live a “normal” life. He reports that he grew up as a Christian in the church and attended church regularly. Prior to the healing, he and his family were cessationists (i.e., believing that miracles happened in Biblical times, but not in the present day). At the time of the healing, they attended a non-

denominational cessationist Christian church. On November 6, 2011, at age 16, the patient and his family went to a service at a Pentecostal church (that believed healing miracles occurred in Biblical times and also occur today) led by a healing evangelist.

In the message, the speaker reported his own story of having his life spared when his intestines were severed in a serious accident after a 22,000 kg truck fell on his abdomen. While hearing this account, the teenager felt a pulsating sensation in his abdominal region. He reports that “It felt as if God was preparing me [...]”. While continuing to listen, he prayed to God “that if He heals my stomach that I would not keep quiet about the subject [sic] [healing]. I told Him that I would share the good news of Jesus and my healing with everyone [...]”.

After the sermon, the evangelist talked to the boy and they “compared battle-scars”, as both went through several surgeries, developing an instant comradery. He asked the whole family to gather, and he led a time of PIP (laying hands upon the boy’s shoulders). The patient doesn’t recall how long the PIP intervention took but mentions that he was prayed for only once. The intercessor prayed that, in the name of Jesus, the boy’s stomach be healed. He commanded the healing in the authority and power of Jesus. He made a point of indicating that he had no power or authority to heal, but only with the authority of Jesus Christ, he could command the healing. Halfway through the prayer the boy recalls a shock starting from his right shoulder going down in a diagonal angle across his abdomen and described it as a pulsating and electrical sensation. It surprised the boy, and he reports that he also experienced some pain at the time of the shock. Despite the discomfort, they continued to pray a while longer. The experience is consistent with prior accounts, from scholarly practitioners, who have noted that “About 50 percent of people who are healed feel something [...] - heat, electricity, tingling, coolness, pain going away”²⁰ This phenomenon is described by charismatics as *manifestations of the Holy Spirit*^{21(p21)}, which may or may not occur during the PIP. That night after prayer, he ate a meal for the first time without any complications.

4.3. Follow-up and outcomes

For 16 years the patient was totally dependent on j-tube feedings and could not tolerate any form of oral feeding. After receiving PIP, his intolerance to oral feedings was completely resolved. He was able to tolerate oral feedings and was completely taken off of the j-tube feedings one month after the PIP experience. The patient’s pediatric gastroenterologist, who was his primary care physician for 16 years, described his case as difficult to explain, but verified that the symptoms had resolved and recommended removing the g- and j-tubes contingent upon three months of toleration to oral feedings (Fig. 2; SM 4: 12/19/11; SM 5: 12/15/11). The patient was able to eat normally during the four months prior to his appointment with the surgeon. The surgeon removed the g- and j-tubes and the abdominal wall, where the tubes previously were, was surgically closed (Fig. 2; SM 6: 04/26/12). To date, six years later, the patient has had no need to see the pediatric gastroenterologist or surgeon, take any medication, nor has he had any health problems.

5. Discussion

Prior to the PIP experience, the patient had symptoms consistent with gastroparesis of idiopathic etiology, including a long time course of the disease, similar to other patients with idiopathic gastroparesis. Conventional management for children who require tube feeding in the presence of GER involves fundoplication and gastrostomy.

The etiology of the case remains unclear. A subset of patients with gastroparesis report sudden onset of symptoms after a viral syndrome, suggesting the diagnosis of post-viral gastroparesis. These previously healthy individuals develop the sudden onset and persistent symptoms of nausea, vomiting, diarrhea, fever, and cramps suggestive of a systemic viral infection (not associated with autonomic neuropathy). Patients with this etiology typically experience the resolution of their symptoms after two years,¹⁹ which argues against a viral etiology in this case. In another study, QoL and functional ability were reported as significantly better in the viral gastroparesis group than the idiopathic with reduced symptoms of abdominal pain, early satiety, and anorexia.⁸

The recovery following the PIP experience is remarkable. The patient had a relatively severe case of gastroparesis with refractory vomiting, abdominal pain and was completely dependent on j-tube feeding. Physicians used every appropriate medical treatment for GER and gastroparesis including medications and surgical procedures, but even with such interventions the patient could not tolerate oral feedings and received all nutrition through the j-tube. He lived with this condition for 16 years (Fig. 2), unable to ingest any form of solid food or liquid, even water. There were multiple complications requiring antibiotics and surgical drainage for infections around the g- and j-tubes. We have found no precedents in the literature for such a sudden resolution of all symptoms after sixteen years of gastroparesis (since infancy).

While gastric motility is not under voluntary control, the sudden resolution of the symptoms of gastroparesis can be evaluated as a potential placebo effect. According to Karren et al.²² this effect can be defined as “the physical change that occurs as a result of what we believe a pill or a procedure will do” (i.e., having to do with faith/expectancy). This belief can create physiological changes to the body as a pharmacological treatment would. Placebos have been tested in comparison to treatments for gastroparesis; however, results of prayer in general are mixed. For example, randomized placebo-controlled trials on drug treatments have found placebos can marginally improve overall gastroparesis-related symptom scores,^{23,24} but placebo effects did not improve gastric emptying.²⁴ In the end, there is insufficient evidence that placebo effects can account for the observed resolution of symptoms. Apart from the question of placebo effects, the mechanisms by which PIP may have contributed to the resolution of symptoms remains unclear. Former treatments targeting serotonergic activity have provided semi-effective relief of gastroparesis symptoms^{11–13} The patient was unresponsive to such interventions, however responsive to PIP, which argues against a psychogenic effect of PIP via the serotonergic system. This outcome is consistent with another case of an individual who had an implanted GES removed one year after a religious experience (S. Islam, personal communication, July 24, 2017). Expert gastroenterologists and pediatric surgeons who reviewed the case proposed the healing might have occurred because PIP activated the autonomic nervous system (ANS) (T. Abell, T. Cutts, personal communication, July 7, 2017). The ANS response to meditation, prayer, and mantras include the activation of the parasympathetic nervous system (PNS), with associated decreases in blood pressure, heart rate variability, respiratory rate, and increased galvanic skin response.^{25,26,27}

This case is consistent with a larger theme in the literature suggesting that PIP may be more effective than distant intercessory prayer (DIP), and that prayer effects may be stronger when administered by those who espouse a theological worldview that accommodates an effect of prayer for healing. While methodological limitations exist on the

of study of intercessory prayer, there is no clear evidence contraindicating in-person prayer as an intervention, especially for seriously ill people²⁸

In recent years, research on the effects of prayer for various conditions has been controversial. For example, DIP, administered through specific types of intercessors, was associated with lower coronary care unit (CCU) scores suggesting that prayer may be an effective adjunct to standard medical care^{29,30} A noteworthy observation is that studies showing positive effects of prayer have typically involved intercessors who either professed either 1) being “born again” Christians (with a commitment to daily devotional prayer and active fellowship with their local church)²⁸ or 2) faith in healing.²⁹ Another study that evaluated the effects of prayer on rheumatoid arthritis found positive results in response to PIP, however no benefits from DIP.³¹ Yet another study on DIP for uncomplicated recovery after coronary artery bypass graft surgery showed no effects, but certainty of receiving DIP was associated with a higher incidence of complications³² However, that particular study design may lack construct validity as the intercessors, who prayed for the patients, were not recruited based upon their belief/faith that healing through prayer is effective.²¹ The discrepancies suggest that construct validity is a concern, and prayer administered by particular types of intercessors might not be efficacious for certain conditions. In contrast, studies involving ministries and intercessors whose research previously showed positive effects of PIP³¹ have been able to replicate comparable findings.^{33,34,35}

While the PIP intervention here involved close contact, it is also possible that the intervention could have been effective at a distance, although we have no definitive evidence in this regard. Some have suggested that distant effects of healing intentions may be pervasive.³⁶ Compassionate, empathetic healing intentions and prayer have been reported to exert measurable effects in fMRI brain scans on a distant recipient³⁷ although problems with the statistical methods used in that study have been pointed out more recently³⁸ and may call into question the replicability. It's not clear whether the intercessor's healing intentions ceased when the patient was out of sensory contact, and there is a possibility of a remaining distant effect. Overall, as noted above, the results of studies of distant healing effects through prayer remain mixed^{30–32}

While the authors and physicians consulted regarding this case consider it a remarkable finding that the medical community should be aware of, there are several limitations regarding the conclusions that can be drawn. First, although the context suggests an effect of PIP on the resolution of symptoms, it is unclear whether or how important it is that the teenager had an existing particular religious background, in this case, Christian. That is, prayers from his past and/or exposure to faith-based activity/practices may have prepared and made him more responsive to the prayer experience, thus enhancing the effects of PIP, but we cannot presently disentangle the relative importance of these factors.

Second, while the placebo effect cannot be completely ruled out, if there was a placebo effect, it is unclear how the symptoms were resolved (e.g., a mind/body effect as the result of faith in something else such as the electric sensation, and/or the story/faith shared by the evangelist and/or the proximal intercessory prayer experience). Another limitation is that there are no medical records for gastric emptying post-healing, although the resolution of symptoms entails a substantial improvement in gastric emptying. The complete resolution of severe gastroparesis symptoms (i.e., dependent on feeding tubes) is not known to spontaneously occur, and studies of placebos have shown only partial resolution of symptoms at best.²⁴

Researchers have explored links between self-reported ratings on the importance of faith and responsiveness to religious cognitive behavioral therapy showing marginal relationships^{22,39,40} However, this prior research did not examine prayer nor the history of commitment. To the best of our knowledge, there have been no findings on faith associated with ‘self-rated importance’ and/or ‘historical commitment’

in relationship to responsiveness to prayer. Given the profound outcome in the current case report, controlled trials of the effect of theological and practical approaches by the prayer ministers are warranted.

Finally, opinions of practicing physicians and experts presented here support the explanation of a proposed healing effect, but there is a lack of evidence-based reasoning, mainly due to the dearth of prior literature. We speculate that the relative lack of prior literature is due to the unclear effects of distant intercessory prayer, on the basis of which the authors of the Cochrane Review have explicitly discouraged further research, whether DIP or PIP. 28

Further study is warranted to ascertain whether and how PIP experiences may play a role in the apparent spontaneous resolution of lifelong conditions through PIP, having otherwise no prospect of recovery.¹⁶ Investigation of the effects of PIP experiences on the ANS (e.g., various levels of neurotransmitters, heart rate variability, and blood pressure) merit additional research to understand the underlying biological mechanisms sensitive to PIP practices.

6. Patient's perspective

“Living with feeding tubes was a struggle, to say the least. Growing up being an active child, it was difficult to get the hydration and nutrition necessary with a drip feeding process. During the prayer, I felt an electric shock that started from my right shoulder traveling down through my stomach. That was the moment that I knew I had been touched by the holy spirit. Since I have been healed of my illness, I have had more energy than ever before, and have thoroughly enjoyed the new adventure of trying all different types of foods. I have entered into the medical field in search to help the sick and needy, and to give back the great care I received as a patient.”

Consent

A copy of the written consent for the publication of this case report and accompanying medical records are available for review of the Editor-in-Chief of this journal.

Conflicts of interest

None.

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Contributions

DZ and CR collected and analyzed the data. CR, DZ, and JB wrote the paper.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <https://doi.org/10.1016/j.ctim.2019.03.004>.

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