Polycythemia and Fibroids or Leiomyoma

1. A case of myomatous erythrocytosis syndrome associated with a large uterine leiomyoma.

**Author(s):** Ono, Yosuke; Hidaka, Takao; Fukuta, Kaori; Kouchi, Keiko; Yasoshima, Kuniaki; Takagawa, Kiyoshi; Arai, Takashi

**Source:** Case reports in obstetrics and gynecology; 2014; vol. 2014 ; p. 602139

**Publication Date:** 2014

**Publication Type(s):** Journal Article

**PubMedID:** 24551466

Available at [Case Reports in Obstetrics and Gynecology](https://www.ncbi.nlm.nih.gov/pubmed/24551466) - from PubMed Central

**Abstract:** Several etiologies have been proposed for erythrocytosis associated with uterine leiomyoma. We report a case of erythrocytosis associated with a large uterine leiomyoma, in which specific immunostaining for erythropoietin was positive. A 55-year-old woman, gravida 0, para 0, was referred to our hospital for treatment for a large uterine myoma and erythrocytosis. She had no vaginal bleeding after she reached menopause at 50 years old. She had severe polycythemia: hemoglobin (Hb), 19.9 g/dL; red blood cell count (RBC), 6.65 × 10(6)/mm(3); hematocrit, (Hct) 59.1%. An abdominal simple hysterectomy was performed, and a pathological examination confirmed the diagnosis of leiomyoma of the uterus. In addition, immunostaining demonstrated that the cytoplasm of the leiomyoma cells was strongly positive for erythropoietin. After the operation, the patient's hemoglobin and hematocrit levels normalized, and we diagnosed her condition as myomatous erythrocytosis syndrome.

**Database:** Medline
2. Successful perioperative management of a patient with erythropoietin-producing uterine myoma

**Author(s):** Kobayashi M.; Akatsu M.; Fujita Y.; Nishikawa K.

**Source:** JA Clinical Reports; Dec 2018; vol. 4 (no. 1)

**Publication Date:** Dec 2018

**Publication Type(s):** Article

Abstract: **Background:** Erythropoietin-producing uterine myoma can cause various complications such as arterial or venous thrombosis and bleeding. Therefore, caution is required in the anesthetic management of affected patients. **Case presentation:** A 57-year-old female was suspected to have an erythropoietin-producing uterine myoma and was scheduled to undergo an abdominal total hysterectomy and bilateral salpingo-oophorectomy. Preoperative levels of hemoglobin and erythropoietin were 21.9 g/dl (normal 11.5-15 g/dl) and 23.2 IU/ml (normal 4.2-23.7 IU/ml), respectively. Preoperative phlebotomy and isovolemic hemodilution were performed to prevent arterial and venous thrombosis, following previous evidence that a hemoglobin level < 16 g/dl reduces the occurrence of polycythemia vera-related complications. Fondaparinux 2.5 mg was subcutaneously injected once daily after the operation, resulting in a good perioperative course without major complications. **Conclusion:** Herein, we have described a successful perioperative management of a patient with erythropoietin-producing uterine myoma. Our findings in this case suggest that this combination of antithrombotic therapies can facilitate anesthetic management of patients with this disease.

**Database:** EMBASE

3. Aberrant expression of erythropoietin in uterine leiomyoma: Implications in tumor growth

**Author(s):** Asano R.; Asai-Sato M.; Mizushima T.; Koyama-Sato M.; Sakakibara H.; Hirahara F.; Miyagi E.; Taguri M.; Miyagi Y.; Nagashima Y.

**Source:** American Journal of Obstetrics and Gynecology; Aug 2015; vol. 213 (no. 2); p. 199

**Publication Date:** Aug 2015

**Publication Type(s):** Article

**PubMedID:** 25724399

Abstract: **Objective** Myomatous erythrocytosis syndrome is a rare complication of uterine leiomyoma caused by erythropoietin (EPO) that is produced by tumor cells. We assessed the EPO expression in leiomyomas and investigated the effects of EPO on the tumor growth. **Study Design** Tissue samples were collected from 114 patients with uterine leiomyomas who underwent myomectomy or hysterectomy in Yokohama City University Hospital. From 17 patients, the corresponding normal myometrium was also collected. All samples were analyzed for EPO messenger RNA (mRNA) expression by real-time reverse transcription-polymerase chain reaction. **EPO protein expression** was determined by an enzyme-linked immunosorbent assay. The relationships between EPO expression and clinicopathological features were retrospectively analyzed using the patients’ charts. Blood vessel density and maturity were assessed using hematoxylin-eosin staining and CD34 immunohistochemistry. Results EPO mRNA expression was detected in 108 of 114, or 95%, of the leiomyomas. The mean EPO mRNA expression in the leiomyoma was higher than the corresponding normal myometrium (3836 +/- 4122 vs 1455 +/- 2141; P =.025 by Wilcoxon rank test). The EPO mRNA expression in the leiomyomas varied extensively among samples, ranging from undetectable levels to 18-fold above the mean EPO mRNA of normal myometrium. EPO protein production was observed concomitant with mRNA expression. A positive correlation of leiomyoma size and EPO
mRNA expression was shown by Spearman rank correlation coefficient (rho = 0.294; P = .001), suggesting the involvement of EPO in leiomyoma growth. The blood vessel maturity was also significantly increased in EPO-producing leiomyomas (high vessel maturity in high vs low EPO group: 67% vs 20%; P = .013 by Fisher exact test). Conclusion This report demonstrates that EPO is produced in most of conventional leiomyomas and supports a model in which EPO accelerates tumor growth, possibly by inducing vessel maturity. Our study suggests one possible mechanism by which some uterine leiomyomas reach a large size, and the understanding of EPO expression patterns in these tumors may be useful for management of the patients with leiomyomas.

Database: EMBASE

4. Rapidly developing myomatous erythrocytosis syndrome: a case report.

Author(s): Padavala, Jyothi; Abdelmagied, Amin; Emery, Simon
Source: BMJ case reports; May 2010; vol. 2010
Publication Date: May 2010
Publication Type(s): Case Reports Journal Article
PubMedID: 22751094
Available at Case Reports - from PubMed Central

Abstract: Myomatous erythrocytosis syndrome is polycythaemia associated with uterine leiomyoma, a rare condition known for over five decades with unclear aetiology. The present case is a 51-year-old Caucasian woman who presented with urinary retention and anaemia secondary to multiple uterine fibroids and menorrhagia 5 years following uterine artery embolisation. She opted for abdominal hysterectomy but preoperatively was found to be polycythaemic with haemoglobin of 23 g% and raised serum erythropoietin requiring serial venesections. At a year postoperatively she maintains normal haemoglobin and serum erythropoietin levels. Ectopic production of erythropoietin by fibroids is the most favoured aetiopathogenesis in this case. However, the rapid transition from anaemia to polycythaemia in 5 months is a striking feature as fibroid-linked polycythaemia has so far been reported on presentation. Vigilance is crucial in excluding polycythaemia while such patients are on waiting list as there is a risk of thromboembolism, which is further increased by surgery.

Database: Medline
5. Myomatous erythrocytosis syndrome: further proof for the pathogenic role of erythropoietin.

**Author(s):** Vlasveld, L T; de Wit, C W M; Verweij, R A; Castel, A; Jansen, P M; Peters, A A W

**Source:** The Netherlands journal of medicine; 2008; vol. 66 (no. 7); p. 283-285

**Publication Date:** 2008

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 18663256

**Abstract:** BACKGROUND Myomatous erythrocytosis syndrome is defined by the combination of erythrocytosis, myomatous uterus and persistent restoration of normal haematological values after hysterectomy. A pathogenic role of erythropoietin is suggested by clinical and experimental data. CASE REPORT A postmenopausal patient is described with the classical clinical signs of the myomatous erythrocytosis syndrome. During hysterectomy we demonstrated a large gradient between the erythropoietin levels in the uterine vein and artery, providing direct evidence for in vivo erythropoietin production by the myomatous uterus. CONCLUSION While erythropoietin and its receptor are consecutively expressed in normal and myomatous uterine tissue, it is amazing that erythrocytosis occurs so rarely in such a frequent disorder as uterine myomatous. We strongly advocate cytogenetic examination of the myomatous tissue of subsequent patients with this entity.

**Database:** Medline


**Author(s):** Abdul Ghaffar, Nor Aliza; Ismail, M Pazudin; Nik Mahmood, N M Zaki; Daud, Khurshiah; Abu Dzarr, G A

**Source:** Maturitas; Jun 2008; vol. 60 (no. 2); p. 177-179

**Publication Date:** Jun 2008

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 18482807

**Abstract:** Uterine fibroid or leiomyoma is the commonest benign uterine tumour. Its occurrence in the postmenopausal age group is rare and if enlargement of the fibroid noted during this time, the diagnosis of leiomyosarcoma is provisional until proven otherwise. A case of a postmenopausal woman with a huge uterine fibroid associated with polycythaemia is presented whereby the mass was noted to increase in size within 2 years. The patient was otherwise well except for the growing uterine mass. She had venesection done to treat her polycythaemia and later underwent surgery for total abdominal hysterectomy and bilateral salpingo-oophorectomy. The histopathology report confirmed leiomyoma of uterus with no evidence of sarcomatous changes. It was suggested that large uterine myoma may cause secondary polycythaemia by three postulated mechanisms, i.e. presence of hypoxia suggesting shunting within the tumour, second, the uterine fibroid was compressing the ureters resulting in inappropriate excessive production of erythropoietin by the kidneys, and third, the tumour itself may have been producing the erythropoietin.

**Database:** Medline
7. Polycythemia as a result of ectopic erythropoietin production in benign cystic leiomyoma of uterus.

**Author(s):** Maslovsky, I; Gemer, O; Gefel, D; Zimra, Y; Lugassy, G

**Source:** Acta obstetricia et gynecologica Scandinavica; 2006; vol. 85 (no. 7); p. 887-888

**Publication Date:** 2006

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 16817092

Available at Acta obstetricia et gynecologica Scandinavica - from Wiley Online Library Science, Technology and Medicine Collection 2017

**Database:** Medline


**Author(s):** Patel, P B; Radin, R

**Source:** Acta radiologica (Stockholm, Sweden : 1987); Nov 2006; vol. 47 (no. 9); p. 998-999

**Publication Date:** Nov 2006

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 17077054

**Abstract:** We report the case of a 36-year-old woman with erythrocytosis due to ectopic erythropoietin production by a very large uterine leiomyoma. Awareness of this uncommon condition is important so that the correct diagnosis can be suggested prior to surgery and radical resection can be avoided.

**Database:** Medline


**Author(s):** Blockeel, Christophe; De Beeck, Bart Op; Bourgain, Claire; Amy, Jean-Jacques

**Source:** The National medical journal of India; 2005; vol. 18 (no. 5); p. 247-249

**Publication Date:** 2005

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 16433138

**Abstract:** Uterine myomas are common but erythrocytosis caused by these is rarely seen. We report a case that illustrates the conjunction of various aetiological factors required for this clinical entity to evolve. A voluminous, retroperitoneally located and focally degenerated myoma was associated with severe secondary erythrocytosis (haematocrit: 65.5%) which resolved after hysterectomy. It has been demonstrated previously that myomatous tissue is the source of excessive production of erythropoietin. Local tissue hypoxia, which is more prone to develop in a pedunculated myoma, stimulates the process. Other prerequisites are a very large size of the myoma and the absence of menometrorrhagia of a severity such as to cause a depletion in iron reserves.

**Database:** Medline
10. Erythropoietin and erythropoietin receptor system in a large uterine myoma of a patient with myomatous erythrocytosis syndrome: possible relationship with the pathogenesis of unusual tumor size.

**Author(s):** Pollio, Fabrizio; Staibano, Stefania; Mansueto, Gelsomina; De Rosa, Gaetano; Persico, Francesco; De Falco, Marianna; Di Lieto, Andrea

**Source:** Human pathology; Jan 2005; vol. 36 (no. 1); p. 120-127

**Publication Date:** Jan 2005

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 15712191

**Abstract:** The rare condition of women with erythrocytosis and a concurrent myomatous uterus has been classified as "myomatous erythrocytosis syndrome". Substantial myoma size has been noted as a common denominator in this condition in which recent evidence have confirmed erythropoietin (Epo) production by myoma tissues themselves. Apart from its primary endocrine role in controlling erythropoiesis, Epo has been demonstrated to mediate several cellular processes such as angiogenesis, mitogenesis, and inhibition of apoptosis by autocrine and paracrine mechanisms. Recently, Epo and its receptor (Epo-R) have been shown to be involved in the growth, viability, and angiogenesis of several malignant tumors including human female reproductive organ malignancies.

In this paper, we researched on Epo and, as a first in the literature, Epo-R immunoexpression in a large uterine myoma of a term pregnant patient suffering from the myomatous erythrocytosis syndrome. Eight nongravidic leiomyomas and 8 gravidic leiomyomas were used as control group samples. Apart from confirming Epo production by myoma smooth muscle cells in the myomatous erythrocytosis syndrome, we reveal in this pathologic condition a characteristic strong Epo-R expression in myoma endothelial cells and a weak and sporadic Epo-R expression in myoma smooth muscle cells. The striking presence of Epo-R within myoma tissues in the case of the myomatous erythrocytosis syndrome allows us to speculate that myoma Epo production, besides determining erythrocytosis through systemic effects, may contribute, acting by autocrine and paracrine mechanisms, in determining the large myoma size almost always observed in this condition. Finally, we confirm a less but specific immunostaining for Epo in uterine myomas of patients without erythrocytosis, and as a first in the literature, we prove a weak and sporadic Epo-R expression in these lesions. These last results may contribute to knowledge of the yet unclear etiopathogenesis of the most common human gynecologic neoplasm.

**Database:** Medline

11. The myomatous erythropoiesis syndrome.

**Author(s):** Baruah, S; Sturdee, D W

**Source:** Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology; Nov 2004; vol. 24 (no. 8); p. 934-935

**Publication Date:** Nov 2004

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 16147665

**Database:** Medline
12. Erythrocytosis due to an erythropoietin-producing large uterine leiomyoma.

**Author(s):** Yokoyama, Yuji; Shinohara, Akihiro; Hirokawa, Mitsuyosi; Maeda, Nobuhiko

**Source:** Gynecologic and obstetric investigation; 2003; vol. 56 (no. 4); p. 179-183

**Publication Date:** 2003

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 14564105

Available at Gynecologic and obstetric investigation - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:**
BACKGROUND Various etiologies of myomatous erythrocytosis syndrome (erythrocytosis associated with a uterine leiomyoma), one of which is altered production of erythropoietin, have been proposed. We report a case of erythrocytosis associated with a large uterine leiomyoma in which erythropoietin activity and immunostaining for erythropoietin in the leiomyoma were found.

CASE A 64-year-old woman, gravida 2, para 1, was referred to our department for treatment of a large uterine myoma and erythrocytosis with elevated levels of erythropoietin. Total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed, and the results of the pathological examination confirmed the diagnosis of leiomyoma of the uterus, which weighed 920 g. The patient’s postoperative course was satisfactory, and the levels of hemoglobin and erythropoietin were normalized and remained within normal ranges. The level of erythropoietin in the uterine leiomyoma measured by radioimmunoassay was elevated (372 mU/wet gram), and specific immunostaining for erythropoietin was found in the cytoplasm of leiomyoma cells. The levels of erythropoietin extracted from uterine leiomyomas of other patients who did not have erythrocytosis (control patients, n = 5) were lower (65 +/- 15.3 mU/wet gram), but specific immunostaining for erythropoietin was also found in the cytoplasm of leiomyoma cells from those patients.

CONCLUSIONS Our case was typical of myomatous erythrocytosis syndrome in which uterine leiomyoma was proved to produce erythropoietin. Our results also suggest that erythropoietin is produced in uterine leiomyomas of patients with and without erythrocytosis. Leiomyoma of the uterus may affect the production of erythropoietin and may develop into myomatous erythrocytosis syndrome when the level of erythropoietin exceeds the normal range.

**Database:** Medline

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13. Myomatous erythrocytosis syndrome

**Author(s):** Narita F.; Ohara N.; Fukunaga K.

**Source:** Journal of Obstetrics and Gynaecology; Sep 2003; vol. 23 (no. 5); p. 577

**Publication Date:** Sep 2003

**Publication Type(s):** Conference Paper

**PubMedID:** 12963536

**Database:** EMBASE

**Author(s):** Suzuki, M; Takamizawa, S; Nomaguchi, K; Suzu, S; Yamada, M; Igarashi, T; Sato, I

**Source:** British journal of haematology; Apr 2001; vol. 113 (no. 1); p. 49-51

**Publication Date:** Apr 2001

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 11328280

Abstract: We report a patient with uterine myoma (leiomyoma) and erythrocytosis in whom erythropoietin (Epo) production in the leiomyoma tissue was identified by reverse transcription polymerase chain reaction (RT-PCR) and enzyme-linked immunosorbent assay (ELISA). A 48-year-old Japanese woman with uterine myoma showed marked erythrocytosis (haemoglobin: 20.2 g/dl, haematocrit: 61.1%, red blood cells: 6.51 x 10^{12}/l). After hysterectomy, erythrocytosis rapidly disappeared. In the leiomyoma tissue collected from the patient, Epo mRNA expression was confirmed using RT-PCR. Furthermore, ELISA showed that the Epo protein level was significantly increased compared with those in control tissues. It is suggested that the pathogenesis of erythrocytosis in patients with uterine myoma involves ectopic Epo production by leiomyoma tissues.

**Database:** Medline

15. Large uterine myoma with erythropoietin messenger RNA and erythrocytosis.

**Author(s):** Kohama, T; Shinohara, K; Takahura, M; Inoue, M

**Source:** Obstetrics and gynecology; Nov 2000; vol. 96 (no. 5); p. 826-828

**Publication Date:** Nov 2000

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 11094224

Abstract: BACKGROUND Myomatous erythrocytosis syndrome (erythrocytosis associated with a uterine myoma) has multiple proposed etiologies, one of which is altered erythropoietin production. CASE A 28-year-old woman, gravida 0, para 0, presented with a solitary, degenerated uterine myoma that was 34-36 weeks' gestational size and erythrocytosis. After GnRH agonist treatment and myomectomy, the tumor was analyzed by reverse transcription-polymerase chain reaction. Specific erythropoietin primer with erythropoietin messenger RNA was noted. CONCLUSION Erythropoietin production by myomata might cause erythrocytosis in myomatous erythrocytosis syndrome.

**Database:** Medline
16. Giant myoma and erythrocytosis syndrome.

**Author(s):** Ozsaran, A A; Itil, I M; Terek, C; Kazandi, M; Dikmen, Y

**Source:** The Australian & New Zealand journal of obstetrics & gynaecology; Aug 1999; vol. 39 (no. 3); p. 384-386

**Publication Date:** Aug 1999

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 10554963

Available at The Australian & New Zealand journal of obstetrics & gynaecology - from Wiley Online Library Science, Technology and Medicine Collection 2017

**Abstract:** The objective of this study is to discuss the myomatous erythrocytosis syndrome in a patient with a giant subserous uterine myoma. She presented with plethora and an abdominal mass. After venesection of 4 units of blood, the preoperative haematocrit value of 53.3% and haemoglobin value of 17.5 g/dL had decreased to 48.6% and 16.8 g/dL levels, respectively. After the operative extraction of the giant subserous myoma with attached uterus weighing 14.2 kg, the haematocrit and the haemoglobin values had regressed to 40.3% and 14.3 g/dL levels, respectively. The findings indicated that the giant subserous myoma was the cause of the myomatous erythrocytosis syndrome in this patient.

**Database:** Medline

17. Erythrocytosis and a fibroid.

**Author(s):** Yoshida, M; Koshiyama, M; Fujii, H; Konishi, M

**Source:** Lancet (London, England); Jul 1999; vol. 354 (no. 9174); p. 216

**Publication Date:** Jul 1999

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 10421304

Available at Lancet (London, England) - from ProQuest (Hospital Premium Collection) - NHS Version

**Database:** Medline
18. The myomatous erythrocytosis syndrome: a review.

Author(s): LevGur, M; Levie, M D

Source: Obstetrics and gynecology; Dec 1995; vol. 86 (no. 6); p. 1026-1030

Publication Date: Dec 1995

Publication Type(s): Journal Article Review

PubMedID: 7501327

Available at Obstetrics and gynecology - from Ovid (LWW Total Access Collection 2015 - Q1 with Neurology)

Abstract: OBJECTIVE: To review the literature regarding the association of erythrocytosis and uterine myomas, because of the lack of anemia in many women with menorrhagia and fibroids. DATA SOURCES: We searched the MEDLINE English-language data base and reference lists to find articles referring to the myomatous erythrocytosis syndrome. METHODS OF STUDY SELECTION: All case reports of the myomatous erythrocytosis syndrome were included in this review. DATA EXTRACTION AND SYNTHESIS: Symptoms, laboratory studies, histopathologic findings, and possible etiologies for each of 31 cases were extracted. The symptoms described were most commonly related to the presence of a myomatous uterus with occasional manifestations of erythrocytosis. A routine complete blood count was used to diagnose erythrocytosis in all cases. Evaluation of the bone marrow, blood volume, erythrocyte life span, and erythropoietin activity have all been used to help confirm the diagnosis. The histopathologic findings were similar to those commonly seen in myomas. Possible factors in the etiology of this syndrome include: vascular shunts within the myoma, large uterine size, myoma site, change in red cell life span, alteration in erythropoietin production by the kidney, and autonomous secretion of erythropoietin or an erythropoietin-like substrate by the myomatous uterus. CONCLUSION: Elevated levels of erythropoietin accompany the myomatous erythrocytosis syndrome. All myomas may alter erythropoietin production, causing varying degrees of erythrocytosis, which could explain the lack of anticipated anemia despite the presence of menorrhagia. Use of the currently available, highly sensitive radioimmunoassay for erythropoietin should help in our understanding of the role uterine myomas play in erythropoiesis.

Database: Medline

**Author(s):** Clark, C L; Wilson, T O; Witzig, T E

**Source:** Obstetrics and gynecology; Oct 1994; vol. 84 (no. 4); p. 722-724

**Publication Date:** Oct 1994

**Publication Type(s):** Research Support, Non-u.s. Gov't Case Reports Journal Article Review

**PubMedID:** 9205464

**Abstract:** Although the association between large uterine fibromyomas and secondary polycythemia has been described previously, the mechanism has not been elucidated definitively. Investigators have measured erythropoietin levels in fibromyomas to determine whether these tumors are causing the polycythemia by erythropoietin overproduction; however, these studies were performed before the availability of recombinant erythropoietin assays.

**CASE** A 59-year-old woman presented with a 3-year history of polycythemia. Pelvic examination revealed a large lower abdominal mass. Laboratory evaluation revealed a hemoglobin of 20.8 g/dL, red blood cell mass of 3300 mL, oxygen pressure of 58 mmHg with an oxygen saturation of 89%, and erythropoietin level of 18 mU/mL. Cardiac echocardiogram showed no evidence of shunt. Computed tomography scan of the abdomen showed a large mass arising in the pelvis and compressing both ureters. The patient was treated surgically with a total abdominal hysterectomy. Pathology confirmed a uterine leiomyoma weighing 2320 g. Two months post-surgery, the patient was asymptomatic with a hemoglobin of 13.9 g/dL and erythropoietin level less than 4.0 mU/mL.

**CONCLUSION** This case provides evidence for three of the postulated mechanisms by which uterine fibromyomas may cause polycythemia. First, the patient was hypoxic, suggesting shunting within the tumor. Second, the leiomyoma was compressing the ureters, so the kidneys may have been inappropriately producing excess erythropoietin. Third, the tumor itself may have been producing the erythropoietin. In any case, the erythropoietin level in this patient was inappropriately high, providing useful evidence that her polycythemia was secondary to her fibromyoma.

**Database:** Medline

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20. Polycythemia associated with uterine fibroid.

**Author(s):** Takkar, D; Kumar, A

**Source:** Indian journal of medical sciences; Jun 1994; vol. 48 (no. 6); p. 144-146

**Publication Date:** Jun 1994

**Publication Type(s):** Case Reports Journal Article

**PubMedID:** 7927586

**Abstract:** Polycythemia has been observed to occur infrequently in association with uterine fibromyomas. Study of this case revealed polycythemia prior to surgery and remission was noted after myomectomy. The mechanisms proposed to explain polycythemia in such a tumor were revised.

**Database:** Medline

Author(s): Raj, R; Lake, Y

Source: British journal of obstetrics and gynaecology; Nov 1992; vol. 99 (no. 11); p. 923-925

Publication Date: Nov 1992

Publication Type(s): Case Reports Journal Article

PubMedID: 1450146

Database: Medline

22. Multiple cutaneous leiomyomata and erythrocytosis with demonstration of erythropoietic activity in the cutaneous leiomyomata.

Author(s): Venencie, P Y; Puissant, A; Boffa, G A; Sohier, J; Duperrat, B

Source: The British journal of dermatology; Oct 1982; vol. 107 (no. 4); p. 483-486

Publication Date: Oct 1982

Publication Type(s): Case Reports Journal Article

PubMedID: 7126455

Database: Medline

23. Polycythaemia and erythropoetin producing uterine fibromyoma.

Author(s): Naets, J P; Wittek, M; Delwiche, F; Kram, I

Source: Scandinavian journal of haematology; Jul 1977; vol. 19 (no. 1); p. 75-78

Publication Date: Jul 1977

Publication Type(s): Journal Article

PubMedID: 882844

Abstract: A case of polycythaemia secondary to uterine fibromyoma is reported. Polycythaemia disappeared after hysterectomy. Erythropoietic activity was detected in the cyst fluid of the tumour. Plasma and urine contained no erythropoietic factor. Polycythaemia was related to erythropoietinlike material produced by the tumour.

Database: Medline
24. Erythrocytosis due to erythropoietin producing uterine fibromyoma

**Author(s):** Weiss D.B.; Aldor A.; Aboulafia Y.

**Source:** American Journal of Obstetrics and Gynecology; 1975; vol. 122 (no. 3); p. 358-360

**Publication Date:** 1975

**Publication Type(s):** Article

**PubMedID:** 1130459

**Abstract:** Erythrocytosis has been observed to occur infrequently in association with uterine fibromyomas. Study of this case revealed erythrocytosis prior to surgery and a remission was noted after myomectomy. Elevated erythropoietin activity in this patient's serum was demonstrated. The erythropoietin activity in the tumor tissue extract was 10 times higher than in the control tissue extract. The authors postulate that the tumor itself was responsible for the erythrocytosis observed. The mechanisms proposed to explain erythrocytosis in such a tumor were revised. It is concluded that the tumor produced the erythropoietin autonomously and that this process is not subjected to feedback control mechanisms.

**Database:** EMBASE


**Author(s):** Ossias, A L; Zanjani, E D; Zalusky, R; Estren, S; Wasserman, L R

**Source:** British Journal of Haematology; Aug 1973; vol. 25 (no. 2); p. 179-185

**Publication Date:** Aug 1973

**Publication Type(s):** Journal Article

**PubMedID:** 4726901

**Database:** Medline

26. Uterine myomas and erythrocytosis.

**Author(s):** Spurlin, G W; Van Nagell, J R; Parker, J C; Roddick, J W

**Source:** Obstetrics and Gynecology; Nov 1972; vol. 40 (no. 5); p. 646-651

**Publication Date:** Nov 1972

**Publication Type(s):** Journal Article

**PubMedID:** 5083213

**Database:** Medline
27. Secondary polycythaemia due to a uterine fibromyoma producing erythropoietin.

Author(s): Wrigley, P F; Malpas, J S; Turnbull, A L; Jenkins, G C; McArt, A

Source: British journal of haematology; Nov 1971; vol. 21 (no. 5); p. 551-555

Publication Date: Nov 1971

Publication Type(s): Journal Article

PubMedID: 5111704

Database: Medline


Author(s): Maudsley, R F; Boehm, F H

Source: Canadian Medical Association journal; Sep 1970; vol. 103 (no. 5); p. 517-518

Publication Date: Sep 1970

Publication Type(s): Journal Article

PubMedID: 5469625

Available at Canadian Medical Association Journal - from PubMed Central

Database: Medline

29. Erythrocytosis associated with uterine fibroids.

Author(s): Kline, R J; Pratt, J J; Hanlon, D G

Source: The Journal of the Medical Society of New Jersey; Oct 1969; vol. 66 (no. 10); p. 578-580

Publication Date: Oct 1969

Publication Type(s): Journal Article

PubMedID: 5259907

Database: Medline

30. Uterine fibromyomata and secondary polycythaemia.

Author(s): Payne, P; Woods, H F; Wrigley, P F

Source: The Journal of obstetrics and gynaecology of the British Commonwealth; Sep 1969; vol. 76 (no. 9); p. 845-849

Publication Date: Sep 1969

Publication Type(s): Journal Article

PubMedID: 5823686

Database: Medline
31. Polycythemia and uterine fibroids.
Author(s): Payne, P R
Source: Proceedings of the Royal Society of Medicine; Dec 1968; vol. 61 (no. 12); p. 1279-1280
Publication Date: Dec 1968
Publication Type(s): Journal Article
PubMedID: 5727006
Available at Proceedings of the Royal Society of Medicine - from PubMed Central
Database: Medline

32. Polycythaemia associated with leiomyoma of the uterus.
Author(s): Paranjothy, D; Vaish, S K
Source: The Journal of obstetrics and gynaecology of the British Commonwealth; Aug 1967; vol. 74 (no. 4); p. 603-605
Publication Date: Aug 1967
Publication Type(s): Case Reports Journal Article
PubMedID: 6033281
Database: Medline

33. Polycythemia associated with uterine fibroma.
Author(s): VANDEN BERG, A R; VASU, C M
Source: JAMA; Jul 1963; vol. 185; p. 249-251
Publication Date: Jul 1963
Publication Type(s): Journal Article
PubMedID: 13996183
Available at JAMA - from American Medical Association Athens - NHS
Database: Medline

34. Polycythemia (erythrocytosis) associated uterine fibroids and apparent surgical cure.
Author(s): HERTKO, E J
Source: The American journal of medicine; Feb 1963; vol. 34; p. 288-294
Publication Date: Feb 1963
Publication Type(s): Journal Article
PubMedID: 13954151
Database: Medline
35. Fibromyomata and polycythaemia.

Author(s): MENZIES, D N

Source: The Journal of obstetrics and gynaecology of the British Commonwealth; Jun 1961; vol. 68; p. 505-509

Publication Date: Jun 1961

Publication Type(s): Journal Article

PubMedID: 13769522

Database: Medline

36. Polycythaemia and fibromyoma of the uterus.

Author(s): LAURIN, J G; GIRARD, Y; GAUTHIER, G; LEDUC, P E

Source: Canadian Medical Association journal; Aug 1960; vol. 83; p. 318-319

Publication Date: Aug 1960

Publication Type(s): Journal Article

PubMedID: 14414600

Available at Canadian Medical Association Journal - from PubMed Central

Database: Medline

37. Polycythaemia associated with uterine fibromyoma.

Author(s): ZILLIACUS, H

Source: Acta obstetricia et gynecologica Scandinavica; 1959; vol. 38; p. 737-741

Publication Date: 1959

Publication Type(s): Journal Article

PubMedID: 13847495

Database: Medline

38. Polycythemia associated with uterine myomas.

Author(s): FLEMING, A R; MARKLEY, J C

Source: American journal of obstetrics and gynecology; Sep 1957; vol. 74 (no. 3); p. 677-679

Publication Date: Sep 1957

Publication Type(s): Case Reports Journal Article

PubMedID: 13458274

Database: Medline
39. Uterine fibroids associated with polycythemia.
Author(s): SINGMASTER, L
Source: Journal of the American Medical Association; Jan 1957; vol. 163 (no. 1); p. 36-37
Publication Date: Jan 1957
Publication Type(s): Journal Article
PubMedID: 13376339
Database: Medline

40. Polycythemia with fibroids.
Author(s): ENGEL, H W; SINGER, K
Source: Journal of the American Medical Association; Sep 1955; vol. 159 (no. 3); p. 190-191
Publication Date: Sep 1955
Publication Type(s): Journal Article
PubMedID: 13251862
Database: Medline

41. Polycythemia associated with uterine myomas.
Author(s): HORWITZ, A; McKELWAY, W P
Source: Journal of the American Medical Association; Aug 1955; vol. 158 (no. 15); p. 1360-1361
Publication Date: Aug 1955
Publication Type(s): Journal Article
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